THE IRON TRADE REVIEW

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RAILROAD BUYING

BECOMES A PROMINENT FEATURE OF THE MARKET.

Orders for Cars, Locomotives and Structural Material—Basic Pig Active, Especially in the East.

Heavy ordering of cars and locomotives by the New York Central and other lines has been a leading feature of the week. More than 8,000 cars have been ordered, including 4,000 by the New York Central lines and about 60,000 tons of steel will be required in their construction. Complaints of car shortage indicate that ordering by the railroads may have been too long delayed to prevent serious delays in the movement of raw material and finished products this winter. The Forged Steel Wheel Co. has taken an order for 28,000 wheels for cars recently ordered by the Chesapeake & Ohio. Railroads have also figured in orders of good size for structural material, including 3,500 tons awarded to the Pennsylvania Steel Co. by the Interborough Co., New York, about 3,200 tons awarded to three different interests by the Norfolk & Western, and 550 tons by the Hocking Valley railroad to the Mount Vernon Bridge Co. Outside of the railroad buying, contracts for structural material have not been numerous, but the outlook is most encouraging, as many important projects are being figured upon, and builders are beginning to realize that if they expect to erect structures next spring and summer, they must soon get in their orders for material.

Iron Ore Conditions

Furnace interests are becoming anxious in regard to their ore supplies for next year, and in the east, strong pressure is being brought upon miners who have not yet announced their prices for 1910. Buyers of Lake Superior ore are not so insistent as to prices, which it is expected will be advanced 50 cents per ton, but some reservations are already being made, and it will not be surprising if we witness at a not far distant date a repetition of the quick-buying movement of November, 1907, when practically all the ore to be mined for the following year was purchased in ten days. Lake Superior interests are endeavoring, however, to discourage an early buying movement.

Pig Iron

The pig iron market has been characterized by continued activity in steel making irons, particularly basic, in eastern territory, where prices have been advanced to $18.50, tidewater. One easern steel plant has purchased 15,000 tons of basic, part of which tonnage was mentioned last week, and another concern has taken 12,000 tons for first quarter at $18.50, at the furnace. Foundry iron has also been active with advancing quotations in eastern territory, and the Pennsylvania railroad has contracted for its requirements for various grades of pig iron for the first quarter of next year. In the central west and south, the foundry pig iron market has been rather quiet. The Jones & Laughlin Steel Co. Wednesday purchased 20,000 tons of Bessemer at $19, furnace, for December and January delivery.

Billets

Two large sales of billets have been made in eastern territory, one of 10,000 tons for quick shipment to an interest which bought heavily some time ago. In the Pittsburg district, sellers of semi-finished material are not naming prices for shipment beyond the present year. Some buyers are getting very anxious to know where they will obtain their supplies.

Finished Material

Some makers of wire products have opened their books for first quarter shipment at an advance of $2 per ton over present prices. Considerable contracting is now being done. Specifications against contracts for bars and plates are extremely heavy. As many contracts expire Oct. 1, it was expected that specifications would decline after that date, but they have continued at a surprisingly heavy rate. Mills are very slow to commit themselves to contracts for delivery after the first quarter of next year, although some contracts are being made to cover the first half of the year.

LARGE PLANT

WILL BE ERECTED BY AMERICAN BRIDGE CO. AT GARY,

Which Will Have Initial Capacity to Fabricate 10,000 Tons of Steel Monthly—Illinois Steel Co. to Erect Structural Mill With Capacity of 15,000 Tons Monthly.

(Special Telegram.)

Chicago, Oct. 20.—The American Bridge Co. has announced its intention to begin immediately the construction of a structural steel fitting plant at Gary, Ind., with an initial capacity to fabricate 10,000 tons of structural steel monthly. The plans have been designed with a view to future plant extension up to a capacity of 20,000 tons monthly. The first division of this plant will employ approximately 2,000 men. The work of construction is to begin at an early date and continue to the early completion of the plant. The building of the plant gives further evidence of the growing importance of the Chicago district as a distributing center for steel products of all kinds.

The American Bridge Co. engages in the fabrication of structural steel for building railroad bridges and miscellaneous steel structures. Its present largest plant is at Ambridge in the Pittsburg district. The building of its proposed plant at Gary will equip the American Bridge Co. for supplying from the Chicago district all of the western demand for fabricated structural steel the same as it is now equipped for furnishing such fabricated steel from its large plant in the Pittsburg district.

Not of least importance is the fact that the large demand for fabricated structural steel in the city of Chicago will find new facilities for meeting needs right at its doors. In keeping with the policy of the United States Steel Corporation, this plant of the American Bridge Co. will be the most modern in every respect.

The Illinois Steel Co. has announced

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THE WEEK IN IRON CENTERS

PITTSBURG.

Freight Car Buying Resumed—Pig Iron Prices Tend Upward.

Office of THE IRON TRADE REVIEW,
510 Park Building, Oct. 19.

Optimism continues to strongly prevail in the iron and steel business in conformity with the advancing market and the sustained buying activity, but the leading men of the industry are inclined to guard against price excesses and to advocate orderly and conservative policies. Generally there is the belief expressed that the maximum prices of 1.50c on bars and 1.60c on plates and shapes now ruling, represent reasonable and satisfactory levels under present conditions and should not be altered, at least not before the revival of business broadly has asserted itself with substance in all channels of trade.

Forward contracting in market has been extended by the opening of the books of leading makers of wire products at advanced prices. Buying into next year is now under way in rails, bars, shapes, plates, tin plate, sheets and wire products, but generally contracts are being accepted cautiously and with discrimination. Bars, shapes and plates in special cases have been sold over the first half at today's prices. The covering of the needs of consumers of sheets and tin plate is very active. In semi-finished material, makers are not ready to commit themselves on next year's allotments because of their own increased requirements. Line pipe has again been advanced $2 a ton. Furnace coke at present appears well anchored slightly under $3 ovens, but foundry coke is on the rise. The tendency in pig iron continues upward with basic metal leading in activity.

Freight car buying by the railroads, which had not been of prominence in the market for a number of weeks past, has been resumed vigorously and more than 8,000 cars have been placed the past week. The prospects before car builders are reported as excellent and some of the largest systems of the country are expected to make large additions to the purchases of cars recently closed. The need of an increased supply of rolling stock is daily becoming more apparent to railroad officials and in some quarters, notably in the coke regions, the scarcity of suitable cars has already been felt in the impeded movement of freight.

Pig Iron.—With the exception of basic iron, which is beginning to show the activity predicted for it since the heavy buying and rapid advance of Bessemer, the pig iron market has been in a more quiet state the past week. The tone of conditions is strong, however, and the advance of prices continues in the more active grades.

Selling of basic this week has been at from $17 to $17.25, valley, for shipment this year and at higher prices for first quarter. A local consumer bought about 3,000 tons for first quarter, of which 1,500 tons was obtained at $17.25, valley, and the balance at $17.35, valley. A lot of 2,000 tons for shipment this year was closed at $17.25, valley. Large buyers in St. Louis, Chicago and Ohio territory have entered the market and some of them have covered for round tonnages. An Ohio steel company took 10,000 tons for first half at $18, delivered, or about $17.25 at a nearby furnace. The American Steel Foundries bought 5,000 tons for first half delivery at St. Louis at about $17, Ohio furnace. Another large St. Louis consumer, has been asking prices on 15,000 tons for first half. Bessemer iron is firmly established at a minimum of $19, valley, with higher prices asked in some cases for forward shipment. There has been no important buying since the recently reported large sale to the Republic Iron & Steel Co. and to merchant interests. Some important transactions in malleable in this territory are pending. Recent selling of this grade has been at from $17.50 to $18, valley.

Foundry iron is firmer at $17.25, valley, for No. 2, for early shipment. Sales this year have also been made at higher prices. On forward shipment through first quarter, there has been buying in small lots at from $17.25 to $17.50, valley. The foundry market is quiet. In gray forge, a lot of 1,000 tons for delivery through February was sold at $16.50, valley.

There has been some small buying of southern iron in northern Ohio territory on a basis of $15, Birmingham, for No. 2 iron, for first quarter shipment. On prompt and future shipment this year on northern iron, we quote as follows:

Bessemer, valley	$ 19.00
Bessemer, Pittsburg	19.90
No. 2 foundry, Pittsburg	18.15
Gray forge, Pittsburg	17.40 to 17.65
Basic, valley	17.00 to 17.25
Basic, Pittsburg	17.90 to 18.15

Ferro-Alloys.—Little new inquiry for the ferro-alloys is coming out, as large consumers and many of the smaller buyers in this territory are covered for their needs for some period ahead. The market shows more strength, though occasionally quantities of imported material, notably ferro-manganese, are being offered for prompt shipment at concessions.

We quote ferro-manganese at from $43 to $43.50, Baltimore, prompt shipment, or for delivery this year and the first half of 1910, $44.50 to $45.50, Baltimore. The freight from Baltimore to Pittsburg is $1.95.

Fifty per cent ferro-silicon is quoted at $64 to $65, Pittsburg; domestic, 12 per cent, $26; 11 per cent, $25; 10 per cent, $24, Pittsburg, for prompt with $1 advance for first quarter and $2 for first half. The foreign grades are held at advanced prices.

Plates.—The recent temporary lull that had fallen over the car market has been broken by the award of a number of contracts by different roads and the outlook for continued contracting is promising. More than 8,000 cars have been placed in the past few days. The New York Central lines have ordered 4,000 assorted cars from the American Car & Foundry Co., and 1,300 50-ton steel hoppers from the Standard Steel Car Co. The Norfolk & Western has placed 500 box cars and 500 steel hoppers with the Barney & Smith Car Co.; the Seaboard Air Line 1,000 box cars and 25 stock cars with the Barney & Smith Car Co.; the Toledo & Ohio Central 500 box cars with steel underframes with the Barney & Smith Car Co., and the Ann Arbor railroad 300 box cars with the Standard Steel Car Co. The 50,000 to 60,000 tons of steel material for these cars will be furnished largely by the Carnegie Steel Co., Jones & Laughlin Steel Co. and other mills. Plate makers are still receiving very heavy specifications from the car companies, structural interests and miscellaneous sources. The car plants in this territory are running very full and the Pressed Steel Car Co. is preparing to start its works on the North Side, this city, which have been idle for a prolonged period. Deliveries on plates

range from four weeks to three months. The spread of prices is still 1.50c to 1.60c, but some mills state they are asking the latter figure for any shipment. We quote the present market on plates as follows:

Tank plates, ¼-inch thick, 6¼ to 100 inches, 1.50c to 1.60c. Extras are as follows per 100 pounds: Boiler and flange steel plate, 0.10c; A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.20c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches, excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in widths over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches, up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ½-inch to and including 3/16-inch plate on thin edge, 0.10c; under 3/16 to and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—Consumers of sheets generally are contracting freely at quoted prices for their forward needs, particularly over the first quarter, and the market has excellent prospects. There is also some buying for deliveries late this year of the grades in which such deliveries are obtainable. Blue annealed sheets, especially of the heavier gages, are difficult to secure promptly and premiums are being paid for early shipment. Galvanized sheets are still available with reasonable promptness. Mill operations with the leading interest and the independents are about as they have been for several weeks past. We quote the present schedule of prices as follows:

Blue annealed sheets, Nos. 3 to 8, 1.65c; Nos. 9 to 10, 1.70c; Nos. 11 and 12, 1.75c; Nos. 13 and 14, 1.80c; Nos. 15 and 16, 1.90c; box annealed sheets, Nos. 10 to 12, 1.95c; Nos. 13 and 14, 2.00c to 2.05c; Nos. 15 and 16, 2.05c to 2.10c; Nos. 17 to 21, 2.10c to 2.15c; Nos. 22 to 24, 2.15c to 2.20c; Nos. 25 and 26, 2.20c to 2.25c; No. 27, 2.25c to 2.30c; No. 28, 2.30c to 2.35c; No. 29, 2.35c to 2.40c; No. 30, 2.45c to 2.50c; galvanized sheets, Nos. 13 and 14, 2.35c to 2.40c; Nos. 15 and 16, 2.45c to 2.50c; Nos. 17 to 21, 2.55c to 2.60c; Nos. 22 to 24, 2.70c to 2.75c; Nos. 25 and 26, 2.90c to 2.95c; No. 27, 3.10c to 3.15c; No. 28, 3.30c to 3.35c; No. 29, 3.45c to 3.50c; No. 30, 3.70c to 3.75c; painted roofing sheets, $1.60 per square for No. 28 gage, 2½-inch corrugation, and galvanized roofing sheets, $2.85 per square for No. 28 gage, 2½-inch corrugation.

Tin Plate.—The buying of tin plate by the miscellaneous consuming trade for first quarter shipment is large, and it is foreshadowing an active market as to these classes of users. It is too early, however, to draw a line upon the probable needs of the salmon and fish packers. Some makers are booking forward business very conservatively, owing to the indicated higher cost of raw material. The effect of the strike of the Amalgamated Association against the American Sheet & Tin Plate Co. is less in evidence. This week the company is working 20 hot mills out of 30 at its Shenango plant at New Castle, its largest works. We quote the present market as follows: Coke tin plate, 100-pound basis, 14 x 20, $3.50 f. o. b. mill, Pittsburg district.

Rails and Track Material.—Indications point to considerable rail business being placed for next year's delivery by eastern lines within the next 30 days. The buying so far has been principally in the west, but such eastern roads as the New York Central, Chesapeake & Ohio, Philadelphia & Reading, Jersey Central and others will enter the market soon, it is believed. The most recent order which will give tonnage to the mills in this and eastern territory is that of the Norfolk & Western for about 40,000 tons. The Illinois Steel Co. is booked heavily, but Gary is not being pushed, and the Edgar Thomson mills are running easily on current specifications and small-sized new orders, of which there is a fair tonnage. The demand for light rails is good. The spike mills are running well and some makers decline to make quoted prices apply beyond the present year. We quote the market on Bessemer rails as follows, the base price for open-hearth rails being $30, mill:

Fifty-pound and heavier, 500-ton and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; light rails, 8-pound, $31; 12-pound, $30; 16 to 25-pound, $28; 30 to 35-pound, $28.75; 40 to 45-pound, $27; angle splice bars for standard sections, 1.50c, Pittsburg; standard spikes, 1.70c to 1.75c, Pittsburg; hand spikes, 1.75c to 1.80c, Pittsburg.

Steel.—The principal sellers of semi-finished material are stating they are not yet ready to make prices for shipment beyond the present year, although buyers are persistently inquiring and are bringing pressure to bear to obtain their requirements. The deliberation with which some makers are forming their selling policies for next year is due to their inability to ascertain at this time what surplus over their own needs and those of their allied companies they will have to offer. Sheet bars are being offered around $28, mill, for early shipment. Consumers continue to manifest a lively interest in the foreign steel market.

Bessemer 4 x 4 billets with 0.25 carbon and less are quoted at $26 to $26.50, Pittsburg, with the usual extras for size and analysis, and open-hearth rolling billets from $26 to $26.50, Pittsburg. Forging billets are held at $29 to $30, Pittsburg. Sheet and tin bars are quoted at $28 to $29, Pittsburg.

Hoops and Bands.—The volume of new business is not noteworthy, as buyers generally are under contract for their forward requirements. There is a good consumptive movement, however, and specifications are liberal, but the mills are still able to make fairly prompt deliveries. The demand for bands is running with that of steel bars and deliveries are several months in arrears. We quote the market as follows:

Hoops in carload lots, 1.50c to 1.60c; in less than carload lots, 1.60c to 1.70c; bands, 1.40c to 1.50c, base, with net extras as per standard steel.

Merchant Bars.—The Carnegie Steel Co. has issued a new classification of extras on steel tires to conform with the new steel bar card put in effect by the company several weeks ago. Full extras instead of half extras are now asked on steel tires, but the net price differentials over the base are made equivalent to those of the former schedule. The quantity differentials are advanced $1 a ton similarly to steel bars. Buyers of steel bars are showing considerable interest in next year's deliveries and some of them are getting under contract, but the mills are disposed to be conservative in selling ahead. In some cases, contracts covering the first half have been accepted. Some makers are holding to a minimum of 1.50c, Pittsburg, on the ordinary run of contracts for any delivery, but on desirable business 1.45c, Pittsburg, and even 1.40c are still being made. The latter quotation is, however, becoming exceptional. Specifications continue very heavy and deliveries are not improving. Bar iron is gradually strengthening and the market has hardened to a minimum of 1.65c, Pittsburg, with higher prices asked for small lots. Some makers of shafting who are willing to sell into next year are asking advances of two points, but some producers are declining to quote ahead. We quote the present market as follows:

Common iron bars, 1.65c to 1.70c, Pittsburg; Bessemer and open-hearth steel bars, 1.40c to 1.50c; plow and cultivator, 1.40c to 1.50c; channels, angles, zees, tees, under 3-inch, 1.50c to 1.55c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds, 0.15c advance; less than 1,000 pounds of a size, 0.35c advance. Cold rolled and ground shafting, 57 per cent in carloads and 52 per cent in less than carloads, delivered in base territory. Higher prices are asked into next year.

Planished and machine straightened tire is 1.60c base; iron finished tire under 1½ by 1½ inches, 1.55c, both plus net extra on tire card; iron finished tire, 1½ by ½ and over, 1.40c, plus net extra on the steel bar card.

On cold rolled strip steel, width 1½ inches and wider, and 0.100-inch and thicker, we quote base prices for 100 pounds, $3.20 on hard, and $3.45 on soft, except in carload lots of one size where the price is lower.

Structural Material.—Fabricators of structural material are most concerned at the present time with the deliveries on plain shapes which they are able to obtain from the mill. While most of them have much work backed up in their shops, they have unengaged capacity to warrant their acceptance of additional contracts, were they able to rely upon reasonable deliveries of their material. This condition is waging an influence in present lettings, especially where a time limit for completion of work is strictly specified. Deliveries by the mills are not improving and in some quarters are getting worse, as specifications are being received in an increased volume. Some fancy prices for prompt shipments have resulted and sales have been made by eastern shape makers for shipment to western users at 1.70c, their mill, more than $2 advance, including the additional freight, over the lowest Pittsburg prices. Some makers in this territory state they are asking 1.60c, mill, on any shipments. The largest contract now attracting attention of fabricators and the mills is for a public bridge across the Mississippi river at St. Louis which will require about 16,000 tons. The McClintic-Marshall Construction Co. has taken 250 tons for a highway bridge at Wheeling, W. Va. We quote shape prices as follows:

Beams and channels, 15-inch and under, 1.50c to 1.60c; over 15 inches, 1.60c to 1.70c; zees, 1.50c to 1.60c; tees, 1.50c to 1.60c; angles, from 3 to 6 inches, 1.50c to 1.60c; over 6 inches, 1.60c to 1.70c; universal and sheared plates, 6¼ inches wide and wider, 1.50c to 1.60c.

Merchant Pipe.—The National Tube Co. has announced an advance of one point or $2 a ton in line pipe, making the base discount on the 2½ to 6 inch size, 77 off. Some of the independents have been quoting this advance for several weeks. Other classes of tubular goods have not been affected. The general attitude of the makers is not to sell far into the future at the present time, and no orders for next year's shipment have been entered. Some makers decline to quote business to be specified beyond 30 days. While mill capacities are comfortably booked and a good fall trade is current, influential interests in the pipe business are following the policy of keeping the market free of drawn-out deliveries. The general expectation is of an advancing market. We quote the following official discounts on merchant pipe subject to an additional one point and five off to jobbers:

	—Steel—		—Iron—	
	Black.	Galv.	Black.	Galv.
⅛ and ¼ inch.....	71	55	66	..
⅜ inch	72	58	67	53
½ inch	75	63	70	58
¾ to 6 inch.....	79	69	74	64
7 to 12 inch.....	74	59	69	52
PLUGGED AND REAMED.				
1 to 4 inch.....	77	67	72	62
EXTRA STRONG PLAIN ENDS.				
⅛ to ⅜ inch.....	64	52	59	47
½ to 4 inch.....	71	59	56	54
4½ to 8 inch.....	67	55	62	50
DOUBLE EXTRA STRONG PLAIN ENDS.				
½ to 8 inch.....	60	49	55	44

Boiler Tubes.—Severe competition in boiler tubes is developing on desirable business, and some low prices have been named. The volume of new business appearing continues to increase, and the outlook is favorable but for the price disturbances. We quote the following official discounts on lap-welded steel boiler tubes to jobbers in carloads:

1 to 1½ inch.....	49
1¾ to 2¼ inch.....	61
2½ inch	63
2¾ to 5 inch	69
6 to 13 inch	60

2½ inch and smaller, over 18 feet, 10 per cent net extra.

2¾ inch and larger, over 22 feet, 10 per cent net extra.

To destinations east of the Mississippi river will be sold at delivered discount for carloads lowered by two points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburg.

We quote the following official discounts on charcoal iron tubes to jobbers:

1 to 1½ inch	43
1¾ to 2¼ inch.....	43
2½ inch	48
2¾ to 5 inch.....	55
6 to 13 inch.....	43

Wire Products.—Contracts on nails and wire for first quarter shipment are now being taken by some makers including the leading interest at advances up to $2 a ton over present prices. There is a very fair contracting movement under way, particularly among the manufacturers of wire, who are showing an anticipation of an active future business in their line of trade. Some of the independent makers of wire have not formally opened their books to contracts beyond Jan. 1, but are expected to shortly follow the lead of the largest producer. The jobbers are well filled, but there is a fair specifying movement. We quote the market for delivery this year as follows:

Wire nails, jobbers' carload lots, $1.80; retailers' carload lots, $1.85; painted barb wire, jobbers' carload lots, $1.80; retailers' carload lots, $1.85, with 30c for galvanizing; plain wire to jobbers in carloads, $1.60, and to retailers in carloads, $1.65; polished staples, $1.80; galvanized staples, $2.10.

Wire Rods.—Sales of rods for prompt shipment have recently been made at $32, Pittsburg, but prices now appear stronger. New buying is moderate. We quote the market nominally at from $32 to $33, Pittsburg, on Bessemer and open-hearth rods.

Coke.—Repeated offerings of spot furnace coke at $2.75, ovens, by several operators in the week have given the market the appearance of easier conditions, but there has been no weakness and in some quarters higher prices for prompt material are being paid. A considerable tonnage of furnace coke for immediate shipment was taken in the week at $2.85, ovens, and this is the present asking figure of some principal interests. The excitement in the market has, however, moderated, although there is some large business pending. A contract of note made this week calls for 8,500 tons monthly for first half at $2.90, ovens. There have also been closed in the past week or 10 days several large coke transactions on sliding scales based on Bessemer iron at the ratio of seven to one. One of these contracts was for a term of years and the others for one year, and in the aggregate they involve several hundred thousand tons of coke. Leading foundry coke makers in the week advanced their prices on first half contracts from $3.25 to $3.50, ovens, and are quoting $3.25, ovens, for spot shipment. Other sellers are asking a maximum of $3.40. There has been considerable contracting at $3.25, ovens, and prompt selling at $3, ovens. Some of the large makers of foundry coke are well sold up on their capacities for first half. The car supply is irregular and labor conditions continue unsatisfactory. We quote spot furnace coke at from $2.75 to $2.85, ovens, and on contract from $2.85 to $3, ovens. On first class Con-

nellsville foundry coke we quote at from $3 to $3.25, ovens, for prompt and from $3.25 to $3.50, ovens, on contract. The *Courier's* figures for the week ending Oct. 9 show the highest production in the history of the Connellsville regions, which reached 437,829 tons from 35,293 active ovens. The highest previous record of the regions was for the week ending Sept. 30, 1907, when 429,127 tons were drawn from 33,226 active ovens.

Old Material.—The upward movement of scrap prices is being maintained, small sales of heavy steel having been made this week to unimportant buyers at $18.50, delivered. The principal users of the grade, however, decline to pay such prices. The Pennsylvania railroad, with 8,000 to 9,000 tons exclusive of the long rails, and the Baltimore & Ohio railroad, with 5,000 tons, closed on their lists this week, but little of the tonnage came to this territory as far as learned. Outside brokers have been offering what is evidently part of this tonnage at $18.50 at the railroad shops, which would make a higher delivered price. On the material sold it is believed the railroads realized attractive figures. There is considerable scarcity of some grades and with the high prices ruling sales are rather difficult to negotiate, as many consumers are buying only as they are being forced into the market. Wrought and cast scrap is not plentiful. We quote gross tons delivered in the Pittsburg district, including Monessen, Sharon, Follansbee, Brackenridge and Steubenville, as follows:

Heavy melting scrap	$18 00 to 18.50
Rerolling rails	18.50 to 19.00
Bundled sheet scrap	16.00 to 16.50
Iron axles	27.50 to 28.00
Old iron rails	19.50 to 20.00
No. 1 wrought scrap	19.25 to 19.50
Old car wheels	18.00 to 18.50
Low phosphorus	21.50 to 22.00
Machine shop turnings	13.50 to 14.00
Cast borings	11.00 to 11.50
No. 1 cast scrap	16.50 to 17.00
Malleable	16.50 to 17.00
Stove plate	13.50 to 14.00

CHICAGO.

Car Shortage Mars Prospects—Increased Demand for Coke.

Office of THE IRON TRADE REVIEW,
1328 Monadnock Block, Oct. 19.

The week under review has been one of very satisfactory conditions in most lines. Nothing has appeared on the surface which would indicate any cessation in the splendid tide of business which has been rolling in for two or three months. The serious side of the situation is seen in the difficulty experienced in getting prompt supplies of materials, either crude or semi-finished; also, in the scarcity of labor in many industries. This has manifested itself to a very critical extent in the malleable and also the gray iron foundries, so much so, that the production has been cut down very materially in some industries. The car shortage is a menace which still disturbs the prospects for the coming winter, and the lack of an adequate supply of motive power at the command of many railroads is another disquieting feature. Some of the roads are using their maximum of motive power, at the present time, which allows nothing for the expansion in business which the coming winter and spring are sure to see, nor for the necessary repairs which will take some of the engines from the active list. The coke situation is becoming more tense, and manufacturers find themselves called upon to supply larger and larger tonnages on contracts for supplying requirements of foundrymen. It has been found necessary, by the coke manufacturers, to limit their obligations to customers to the maximum estimates made by those customers at the time of contracting. Foundry coke, which usually is shipped in box cars, is now being shipped in open rack cars to such consignees as have given permission for such mode of shipment. Prices are very firm and show an advancing tendency. The Stonega coke makers are so well sold up, that they are quoting $3.50, ovens, which is equivalent to $5.95, Chicago. By-product foundry coke is quoted at $6.10, delivered, Chicago.

Pig Iron.—The one weak spot in the pig iron situation continues to be the presence in the market of some speculative re-sale iron, but this is of such small proportions that it may be considered a negligible quantity. Some Virginia iron is reported to be in the market, and it is now understood that some of the southern furnaces have been making sales extending into the second quarter, to a greater extent than they have been willing to admit. Some little tonnage was handled in this market during the past week, mostly in northern irons. One sale of 5,000 tons of basic to a St. Louis interest was among the transactions. The 16,000-ton inquiry for a foundry and machine company in Chicago, mentioned last week, has only partially been placed, about 5,000 tons having been purchased. Prices are firm on northern iron, one large factor holding for $20, Chicago, for first quarter, which is a prohibitive price at present, but may be reached before the first of the year. The car shortage is being felt in various parts of the country, but is not as severe as it will be, a little later in the season. At present the necessities of melters are not so pressing, owing to their having bought liberally and received a large share of their specifications. When this iron is cut of the way, and shipments begin on many new contracts, a badly congested condition in rolling stock is feared.

Lake Superior charcoal	$20.00 to 20.50
Northern foundry No. 2	19.00 to 19.50
Southern foundry No. 2	19.35
Southern silveries, 5 per cent silicon	20.35 to 20.85
Jackson Co. silveries, 8 per cent.	21.40
Malleable Bessemer	19.50 to 20.00
Alabama basic	18.85 to 19.35

Rails and Track Supplies.—A very fair tonnage has been booked during the past week in standard section steel rails, the leading interest making sales of about 21,000 tons, most of which were Bessemer rails. The orders were of a miscellaneous character, the largest one being 14,000 tons from the Soo line. Negotiations are pending for a very large tonnage of rails for 1910, the total requirements for the railroads of the country being only fractionally provided for, up to the present time. Probably more than half the tonnage in rails remains unplaced for next year. Specifications for track fastenings have been heavy, especially for track bolts and rail joints. Prices are firmly held.

See Pittsburg report for prices on standard sections.

On light rails, Chicago delivery, we quote as follows: Light rails, 40 and 45-pound, $26.00; 30 and 35-pound, $26.75; 16, 20 and 25-pound, $27; 12-pound, $28. In lots of 250 to 500 tons a reduction of 60c a ton from these prices is made; lots of 500 tons and up carry a reduction of $1 a ton. Track supplies, f. o. b. Joliet, angle bars, 1.50c to 1.60c; railroad spikes, 1.80c to 1.90c; smaller size spikes, 1.85 to 1.90c base; track bolts with square nuts, 2.25c to 2.50c, base; with hexagon nuts, 2.40c to 2.65c.

Plates.—There has been some selling for the first quarter of next year, and also for the second quarter, but considerably less in volume. Desirable tonnage from good customers is being taken care of, but this is not a condition peculiar to this one line.

We quote, Chicago delivery, as follows:

Tank plates, ¼-inch thick, 6¼ to 100 inches, 1.68c to 1.78c. For extras see Pittsburg report.

Store quotations are without change, as follows:

Tank steel, ¼-inch and heavier up to 72 inches wide, 1.90c to 2.00c; from 72 inches wide to 96 inches wide, 2.00c to 2.10c; 3/16-inch up to and including 60 inches wide, 2.00c to 2.10c; 72 inches, 2.25c to 2.35c; No. 8 up to 60 inches wide, 2.05c to 2.15c. Flange and head quality, 25c extra.

Sheets.—Mills are far behind in filling their orders, and with this condition existing, there is an increasing tendency to avoid any more selling than

can be escaped. Prices are very firm, particularly on material in store. For mill prices see Pittsburg report, freight to Chicago, 18 cents.

We quote store prices at Chicago as follows: No. 10, 2.20c to 2.30c; No. 12, 2.25c to 2.35c; No. 14, 2.30c to 2.40c; No. 16, 2.40c to 2.50c; Nos. 18-20, 2.65c to 2.75c; Nos. 22-24, 2.70c to 2.80c; No. 26, 2.75c to 2.85c; No. 27, 2.80c to 2.90c; No. 28, 2.90c to 3c; No. 30, 3.15c; galvanized sheets, Nos. 10 to 16, 3c to 3.10c; Nos. 18 and 20, 3.15c to 3.25c; Nos. 22 to 24, 3.30c to 3.40c; No. 26, 3.50c to 3.60c; No. 27, 3.70c to 3.80c; No. 28, 3.90c to 4c; No. 30, 4.30c to 4.40c.

Structural Material. — Considerable business has been booked during the past week, and specifications amounting to a large tonnage have been received. The railroads have about filled up on all their orders and are now inquiring in regard to new contracts or extensions to old ones. The mills are more congested than ever. Practically all the business for this year has been closed, but within the next month or two, the work for next spring will be under negotiation. The American Bridge Co. secured the contract for the addition to the Chamber of Commerce building at Denver, 270 tons, and the Twin City Rapid Transit Co.'s power house at Minneapolis, Minn., 250 tons; also the auditorium for the University of Colorado, 225 tons, at Boulder. Geo. W. Jackson, Inc., took the addition to the Com'monwealth Edison Electric Co. power building, Chicago, 2,459 tons. The revised plans for Chas. A. Comiskey's South Side ball park, the future home of the "White Sox," call for a reduction of one third in the amount of steel to be used, the present requirements being 889 tons. The contract will be let in a day or two. The Noelke-Richards Co., of Indianapolis, secured the Scarborough office building at Austin, Tex., 777 tons. In addition to the work reported above as taken by the leading interest, the Oliver Iron Mining Co. will have extension work of different kinds at its various plants, amounting to several thousand tons.

We quote mill prices for structural shapes, Chicago delivery, as follows:

Beams and channels, 15-inch and under, 1.68c to 1.78c. For extras see Pittsburg report.

Local store prices are as follows: All angles, 3 inches and larger, including 6 inches, $1.90 per 100 pounds; angles over 6 inches, $2.00 per 100 pounds base; beams, 3 to 15 inches, inclusive, $1.90 per 100 pounds base; channels, 3 inches and larger, $1.90 per 10 pounds base.

Merchant Bars.—This branch of the iron and steel market remains in the same sold-up condition. Very little open selling for next year has been done, the almost universal rule being to turn down all offers for future business, except in the case of a well-established customer with desirable tonnage in the order. Bar iron is a little firmer, the minimum price of 1.50c having disappeared almost entirely. Much of the business is being done at 1.55c, and specifications are scrutinized closely and the undesirable ones either refused or a higher price demanded.

We quote for Chicago delivery, as follows:

Bar iron, 1.50c to 1.55c; hard steel bars, 1.50c to 1.55c; soft steel bars and bands, 1.58c to 1.68c, half extras; soft steel angles, less than 3 x 3, 1.63c to 1.68c, half extras; hoops, 1.63c to 1.68c base, full extras; planished or smooth finished tire steel, 1.73c to 1.78c; iron finish, up to 1½ x ½ inch, 1.63c base, tire card; iron finish, 1½ x ½ inch and larger, 1.43c to 1.48c base, steel card; channel for solid rubber tires, ¾ to 1 inch, 2.03c to 2.08c; and 1⅛ inch and larger, 1.93c to 1.98c; smooth finished machinery steel, 1.83c; flat sleigh shoe, 1.53c; toe calk steel, 2.13c; spring steel, 2.18c; crucible spring steel, 2.68c; tool steel, 7c to 9c, with higher prices for special grades. Quotations on shafting are 60 per cent off the list for carload lots, and 55 per cent off for less than carload lots, carload freight allowed to points in base territory. On iron and steel bars from local stocks, we quote as follows: Bar iron, 1.80c, base, plus new extras; soft steel bars, 1.80c to 1.90c per 100 pounds base, plus new extras; soft steel hoops, 2.30c, full extras.

Wire Products.—Trade is moving along at a very satisfactory pace, and business conditions are about as good as could be desired. Quotations are maintained firmly, and there is an increasing amount of business coming in on the present basis, while the specifications on the old line of prices are practically out of the way. Shipments to the northwest, by lake and rail, from the manufacturing points are very heavy, anticipating the close of navigation. We quote, Chicago delivery, for the remainder of this year, as follows:

Wire nails, jobbers' carload lots, $1.98; retailers' carload lots, $2.03; retailers' less than carload lots, $2.13; painted barb wire, jobbers' carload lots, $1.98; retailers', carload lots, $2.03; retailers' less than carload lots, $2.13, with 30c for galvanizing; plain wire to jobbers, carload lots, $1.78; staples, bright, $1.98.

Official announcement has been made by the leading producer that shipments for next year's delivery are being booked at a general advance of $2 a ton.

Merchant Pipe and Tubes.—Local business continues to be of a routine character, with a seasonable demand for both pipe and tubes. Demand for locomotive tubes is affected by the inability of railroads to spare any of their motive power from active service, for examination and repair. This condition will prevail until new engines are bought or the freight business decreases, which latter contingency is quite remote.

For mill discounts, see Pittsburg report.

We quote, out of store, as follows: Wrought steel pipe, black, ⅛-inch to ¼-inch, 68 per cent; ⅜-inch, 69 per cent; ½-inch, 72 per cent; ¾-inch to 6-inch, 76 per cent; 7-inch to 12-inch, 71 per cent. Iron pipe about 6 points higher.

Lap-welded steel tubes, 2¼-inch to 5-inch, 60 to 62 per cent; charcoal iron tubes, 2¼-inch to 4-inch, 48 to 50 per cent; seamless steel tubes, 2¼-inch to 4-inch, 47½ per cent.

Cast Iron Pipe.—Considering the lateness of the season, business in this line is all that could be expected. There is considerable inquiry for material for small undertakings which can be completed before cold weather sets in; this is especially true of western and southwestern business. During next month, it is expected that inquiries will begin to be more active, as projects for next year will be coming to the front. The Newark, O., contract, 750 tons, mentioned last week, was let to Jas. B. Clow & Sons, Chicago. This firm is now shipping 750 tons of pipe for a new water supply for Fort Meade, at Sturgis, South Dakota.

We quote as follows: 4-inch water pipe, $28.50; 6 to 14 inches, $27.50; larger sizes, $26.50; gas pipe, $1 a ton higher.

Old Material.—Some difference of opinion exists as to whether or not this market has reached its high point and is due for a recession, more or less pronounced. Demand does not seem to be quite so great, and there has been a large offering of material by holders, but the next few days probably will show elements of strength or weakness the market pos-

sesses. It is claimed that prices could be scaled down, on a firm offer, and this seems to be the case with some forms of cast scrap.

Old car wheels	$18.00 to 18.50
Old iron rails	20.50 to 21.50
Rerolling rails (4 ft. and over)	18.00 to 18.50
Old steel rails (2 ft. and under)	18.00 to 18.50
Light section relayers, 45 lbs. and under subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	23.50 to 24.50
Frogs, switches and guards	16.75 to 17.25
Heavy melting steel	16.50 to 17.00
Shoveling steel	15.75 to 16.25

We quote, net tons, as follows:

No. 1 R. R. wrought	$16.00 to 16.50
No. 2 R. R. wrought	14.75 to 15.25
Arch bars and transoms	18.50 to 19.00
Knuckles, couplers and springs	15.50 to 16.00
Shafting	17.50 to 18.00
Iron car axles	21.75 to 22.25
Steel car axles	20.50 to 21.00
Locomotive tires	17.00 to 17.50
Dealers' forge	13.50 to 14.00
Pipes and flues	12.25 to 12.50
No. 1 cast, 150 lbs. and less	15.50 to 16.00
No. 1 busheling	14.00 to 14.25
No. 2 busheling	10.25 to 10.75
No. 1 boiler cut	11.50 to 12.00
Boiler punchings	15.00 to 15.50
Cast and mixed borings	7.50 to 8.00
Machine shop turnings	11.00 to 11.50
Railroad malleable	15.50 to 16.00
Agricultural malleable	13.50 to 14.00
Stove plate and light cast scrap	13.00 to 13.50
Angle bars, splices, etc. (iron)	18.25 to 18.75
Angle bars, steel	16.50 to 17.00

CLEVELAND.

Outlook for Early Buying of Ore—Heavy Specifications at Mills.

Office of THE IRON TRADE REVIEW,
Browning Building, Oct. 19.

Iron Ore.—Indications of an early buying movement similar to that of November, 1907, when within ten days nearly the entire estimated production for the season of 1908 was purchased, are not lacking. Some reservations have already been made, but the ore interests are disposed to discourage the placing of orders at an early date. Storms interfered with the vessel movement to a great extent last week, but this week the weather has been very favorable.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-bessemer, we quote as follows: Old range Bessemer, $4.50; Mesabi Bessemer, $4.25; old range non-Bessemer, $3.70; Mesabi non-Bessemer, $3.50.

Pig Iron.—The firm attitude of Cleveland furnaces in adhering to $18 Valley for No. 2 foundry, has had a tendency to put a stop to buying. Sellers are, however, well satisfied with the present situation, and are confident that their attitude will soon be justified, as there is a tendency in the valley toward higher quotations. Reports differ as to the present activity of foundries, but most of them are taking iron on contract at a rate which indicates that the melt is heavy. We quote for prompt delivery in Cleveland as follows:

No. 1 foundry	$ 18.75
No. 2 foundry	18.25
No. 3 foundry	17.75
No. 2 southern	18.85
Gray forge	16.90 to 17.15
Bessemer	19.40
Lake Superior charcoal	19.50 to 20.00
Jackson Co. 8 per cent silvery	20.55

Coke.—Buyers who hoped that coke prices would decline have been disappointed, and are not at all confident that much improvement in labor conditions in the Connellsvillt region will be realized. Some interests are asking as high as $3.50 on contracts for foundry coke. We quote that grade for first half delivery at $3.25 to $3.50 and for prompt delivery $3.00 to $3.15. We quote Connellsville furnace coke for prompt delivery at $2.75 to $2.90, and for first half at $2.90 to $3.

Finished Material. — Specifications against contracts, especially for steel bars and plates, have been extremely heavy, and the offices of furnaces and leading sales agencies have been taxed to their limit in taking care of routine business. Some contracting is being done, but mills are very cautious about assuming obligations later than April 1. The demand for light rails has improved and several good sized tonnages have been sold to mining companies at somewhat better prices than prevailed recently. Re-rolling interests are not apparently very active at the present time. The use of steel beams in mines is becoming more popular, and some orders of good size have been placed. Owing to the great activity in steel bars and slow deliveries, the iron mills are getting some business which would ordinarily go to the steel mills.

Old Material.—The local market has been rather quiet for the past few days, although prices are being maintained without difficulty. Practically the only activity is in heavy cast scrap, for which there are numerous inquiries from the various foundries in Cleveland and surrounding towns. The fact that an embargo has been placed upon the Otis Steel Co., which is one of the heaviest buyers in this district, might have something to do with the quietness of the market. The Lake Shore list, which was to have been closed last Monday, was passed up, but will probably be closed upon today. It is reported that enough outside buyers did not quote to make the bidding sufficiently competitive to bring prices to a point where the company wanted to close. Quotations remain about the same as last week, and are, per gross ton, f. o. b. Cleveland, as follows:

Old iron rails	$21.00 to 21.50
Old steel rails (under 6 feet)	17.50 to 18.00
Old car wheels	18.50 to 19.00
Old steel boiler plate	15.50 to 16.00
Malleable iron (railroad)	18.00 to 18.50
Steel axles	19.50 to 20.00
Malleable iron (agricultural)	16.00 to 16.50
Heavy steel	17.50 to 18.00
Country mixed steel	15.00 to 15.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$17.00 to 17.50
No. 1 busheling	14.25 to 14.75
No. 1 machine cast	15.50 to 16.00
Axle turnings	11.50 to 12.00
Machine shop turnings	11.00 to 11.50
Grate bars	12.50 to 13.00
Pipes and flues	13.50 to 14.00
Tank iron	12.50 to 13.00
Sheet iron	8.50 to 9.00
Wrought drilling	11.00 to 11.50
Stove plate	13.00 to 13.50
Cast borings	9.50 to 10.00

NEW YORK.

No Abatement in Pig Iron Activity—Plate Market Brisk.

Office of THE IRON TRADE REVIEW,
Room 1005, No. 90 West St., Oct. 19.

Iron Ore.—Domestic miners who have not yet announced prices for 1910 are having tremendous pressure brought upon them, and furnace interests have already spoken for practically their entire output. The foreign situation is unchanged. Recent charters from Spanish ports include the Rokeby and the Westonby, each at 8s 9d, and Teesbridge, Carthagena, has been taken at 8s 6d to Philadelphia, or 9s to New York.

Pig Iron.—The activity noted in telegraphic dispatches from this center last week is holding up with little sign of abatement. Bookings of the larger interests during the past few days have been heavy and negotiations still under way involve some important tonnages of foundry, basic and malleable. The buying is featured by a brisk demand for low phosphorus iron, one central Pennsylvania consumer having asked for prices on from 9,000 to 18,000 tons for delivery from April to December next, and several steel casting plants in this territory having inquiries out for from 100 to 2,000 tons. The low phos price is firm at $22.00 to $22.50, delivered at eastern Pennsylvania plants, and a good deal of British hematite is being arranged for importation purposes. This, however, is not likely to be available far into the future, as the scarcity of low phosphorus ores on the other side has become acute and furnacemen are quoting with considerable caution. Basic iron has also firmed up sharply. One large interest, which within the week sold some prompt material at $18, delivered, on Monday declined an offer of $18.50 for 15,000 tons of first half iron, holding out for $19.00. In foundry irons the demand is similarly active, sales of the week including one lot of 5,000 tons to a consumer served by the Buffalo furnaces. An inquiry is

current from the General Electric Co. and some other large consumers, but an interesting development of the week has been the purchasing of additional lots by smaller melters who supposedly had covered their full requirements. Buffalo iron is still available in New England on a basis of $16.50, furnace, for early delivery, but this is the minimum. Reports which were circulated to the effect that Virginia iron was available in that district at heavy concessions prove to have had their origin in the efforts of a leading selling interest to dispose of 600 tons on boat at Bridgeport, for which an immediate disposition had to be found. Furnace coke is fairly active at from $3.25 to $3.50, ovens for contract. We quote, New York tidewater prices for delivery over the remainder of the year, as follows:

Northern foundry No. 1	$19.25 to 19.75
No. 2X foundry	18.75 to 19.25
No. 2 plain	18.25 to 18.75
No. 2 southern foundry	19.25 to 19.75
Malleable	19.00 to 19.50
Gray forge	17.25 to 17.75

Ferro-Alloys. — Ferro-manganese is apparently a little firmer, practically all interests now quoting $43 for this year, $45 for first half and $46 for last half, seaboard. We note sales of 1,200 tons, including 800 to a Kentucky consumer for delivery to April 1. Ferro-silicon is quiet, small lots bringing $63 to $64, Pittsburg. The steamer Planet Venus is enroute from Middlesboro with 2,000 tons of ferro-alloys and spiegel.

Finished Material. — In structural materials, aside from 2,500 tons for the New Orleans court house taken by the American Bridge Co., practically all the business closed during the week has been with railroad interests. The Interborough has given the Pennsylvania Steel Co. an order for 3,500 tons for a yard at 240th street. The Norfolk & Western divided its Ohio bridge work, giving 1,200 tons to the Virginia Bridge & Iron Co., about 650 tons to the Pennsylvania Steel Co., and 1,400 tons to the American Bridge Co. The Virginia Bridge & Iron Co. also took 200 tons for the Atlantic Coast line and the Mount Vernon Bridge Co., about 550 tons for the Hocking Valley interests. The Metropolitan Bridge Co., a new factor in this district, will supply 1,200 tons for the Wells-Fargo stables. It is expected that bids will soon be called for on the city bridge at St. Louis, requiring 16,000 tons of steel. The Commonwealth-Edison building at Chicago, 2,500 tons, will probably go to the Morava Construction Co.

Plate interests report an active market, eastern mills quoting 1.50c, Pittsburg, for the balance of the year, and 1.60c for first quarter, though instances are to be found where small lots for prompt shipment bring as high as 1.75c, Pittsburg. Sheared plates are available in from a week to ten days and universals in from three to four weeks. The Lukens plant is running full, night and day turn, in all departments except the 140-inch mill, which is running day only. This interest will furnish 300 tons for a West Shore railroad ferryboat to be built at Newburgh, and 300 tons to a New England structural shop.

Inquiries are current in this district for 4,000 tons of low carbon billets, principally for rolling purposes, on which delivery is asked to begin at once. A wire company in the Chicago district is in the market for 10,000 tons for next year. A Mexican railway is inquiring for 4,000 tons of 40-pound rails and the Panama railway on Monday opened bids on 800 tons of 70-pound open-hearth, the Bethlehem Steel Co. being low. The Pennsylvania Steel Co. has taken 300 tons of girder rails for a Boston line. We quote New York delivery as follows:

Angles, 3 to 6 inches x ¼ inch and heavier, 1.66c to 1.86c; beams, 3 to 15 inches, 1.66c to 1.86c; tees, 3 x ¼ inch and heavier, 1.66c to 1.86c; plates, carload, tank, 1.66c to 1.86c; marine boiler, 2.06c to 2.16c; bar iron, 1.55c to 1.60c; soft steel bars, 1.56c to 1.66c; sheets, No. 28, black, 2.46c.

Cast Iron Pipe.—Considerable business is likely to result from the plans now being prepared at Portland, Me., for a $1,000,000 extension to its water supply system. The Middletown, Conn., insane hospital has received prices on 400 tons of 16-inch pipe and small orders, particularly from the New England district, are somewhat more plentiful. The successful contractor for the New York high pressure extension has not yet closed for the pipe required, 1,200 tons.

Old Materials.—Holders of steel scrap are apparently fairly well satisfied with prices now ruling and are selling a part of their stocks, though reserving a part in anticipation of a further advance. This is resulting in a fair movement of lots ranging from 100 to 500 tons in this district. Rolling mill material is in better demand and all lines are selling briskly at advanced prices. It is understood that some Panama scrap is on the way to this port, where it will be sold on arrival of the vessel in the same manner as prevailed before the recent attempt to dispose of this material in bulk. We quote, gross tons, New York delivery, as follows, these being the prices which dealers are willing to pay:

Old steel rails (re-rolling)	17.00 to 17.50
Relaying rails	19.00 to 19.50
Old car wheels	14.50 to 15.00
Old iron car axles	22.00 to 23.00
Old steel car axles	21.00 to 21.50
Heavy melting steel	15.50 to 16.00
No. 1 railroad wrought	18.50 to 19.00
Iron track scrap	16.00 to 16.50
Wrought pipe	14.50 to 15.00
Cast borings	10.50 to 11.00
Wrought turnings	12.50 to 13.00
Heavy cast scrap	14.00 to 14.50
Railroad malleable	14.00 to 14.50
Stove plate	11.50 to 12.00
Grate bars	12.00 to 12.50

CINCINNATI.

Basic Inquiries are Considerable—Coke Bought on Sliding Scale.

Office of THE IRON TRADE REVIEW,
First National Bank Bldg., Oct. 19.

Pig Iron.—The market during the past week has been quiet but is not entirely devoid of interest as there is still considerable basic inquiry and some moderate tonnage of foundry under consideration with scattered sales. A Tennessee consumer is in the market for 1,000 tons of malleable and a large melter with plants in various localities has purchased 1,500 tons of foundry iron for prompt shipment. The large interests at St. Louis and in Chicago territory which have been figuring on a considerable tonnage of basic have bought some fair blocks, one sale of 5,000 tons of Virginia basic for this year's delivery is reported to have been made to the Chicago interest and 4,000 tons of southern basic went to the St. Louis buyers. Additional tonnage is pending. The leading interest in cast-iron pipe has circulated a general inquiry calling for offers of iron for delivery over the remainder of this year and the first quarter of next year. Prices have made no change and southern iron for delivery over the remainder of the year and prompt shipment is obtainable at $14.50 Birmingham, although some furnaces are demanding $15. For the first quarter of next year southern iron appears to be firm at $15, with one large interest quoting $15, Birmingham, over the entire first half. The opportunity to cover for the first half at $15 has not been productive of much business, although this may be accounted for by the fact that a number of consumers have bought for the first quarter and the furnace will not take second quarter business alone at $15. In southern Ohio iron there is but little trading. No. 2 foundry for prompt shipment and for the remainder of the year can be had at $17 Ironton, but for the first half of 1910, the best price obtainable is $17.50 for No. 2 at furnace. Shipments are good and consumers are taking iron freely on their contracts and in some instances are urging the furnaces to hurry deliveries. An occasional call for prompt

shipment iron enlivens the spot market, although there appears to be no difficulty in securing prompt shipment offerings. The tone of the market in spite of the moderate inquiry and sales may be called steady to firm. We quote for prompt shipment and for delivery over the remainder of the year, based on freight rates of $3.25 from Birmingham and $1.20 from Ironton delivered Cincinnati, as follows:

Southern foundry No. 1	$18.25 to 18.75
Southern foundry No. 2	17.75 to 18.25
Southern foundry No. 3	17.25 to 17.75
Southern foundry No. 4	16.75 to 17.25
Southern No. 1 soft	18.25 to 18.75
Southern No. 2 soft	17.75 to 18.25
Southern gray forge	16.75 to 17.00
Northern No. 1 foundry	18.70 to 19.20
Northern No. 2 foundry	18.20 to 18.70
Northern No. 3 foundry	17.70 to 18.20
Jackson county 6 per cent silicon	19.20
Jackson county 8 per cent silicon	20.20
Jackson county 10 per cent silicon	21.20

Finished Materials.—There is no material change in the market except that deliveries are getting farther behind and for some specifications from eleven to sixteen weeks is the best that can be done. Some consumers who have been tardy in specifying on their contracts are compelled to pay premiums for reasonably near deliveries when a mill can be found to take the order. This feature of the situation is embarrassing to mill representatives who are in turn urging their priincipals to relieve customers in urgent need of material. Jobbers' stocks are depleted and they are urging shipments and finding great difficulty in keeping up their lines.

Coke.—There is a strong market and prices are well maintained with a further advance reported in Connellsville coke. Furnace coke contracts are being made on a sliding scale basis in some instances, the usual base price being $1.60 at the ovens for coke based on $9 Birmingham for pig iron with an advance of 16 2-3 per cent for every dollar advanced in pig iron. The difficulty in securing suitable equipment in some districts for the transportation of foundry coke is having a tendency to make shipments somewhat irregular. Foundries prefer shipments in box or stock cars, which are more easily unloaded, than in rack cars; and the difficulty in making shipments specified to be in box or stock cars is giving the ovens trouble, but there seems to be no lack of rack cars. Quotations in the leading coke producing districts are as follows:

	Prompt shipment.	Remainder of year.	First half 1910.
Connellsville district:			
Fdy. coke.	$3.00 to 3.25	$3.15 to 3.25	$3.25 to 3.50
Fur. coke.	2.85 to 3.00	2.85 to 3.00	2.90 to 3.10
Wise county district:			
Fdy. coke.	2.75	2.75	3.00 to 3.50
Fur. coke.	2.25 to 2.35	2.25 to 2.35	2.35 to 2.50
Pocahontas district:			
Fdy. coke.	2.75	2.50	2.75 to 3.00
Fur. coke.	2.50	2.50	2.50 to 2.75

Old Material.—Consumers appear to be holding off and the scrap dealers are showing some nervousness in regard to prices. The heavy demand for basic iron is to some extent accounted for by the inability of steel makers to buy scrap at reasonable figures. The market has been less active during the week and while there is no quotable change in the market the undertone is easier. Dealers' prices to consumers covering cost of preparation and profit are as follows:

Old No. 1 R. R. wrought, net tons	$14.50 to 15.00
No. 1 machinery, net tons	14.50 to 15.00
No. 1 busheling, net tons	14.00 to 14.50
Old iron rails, gross tons	15.00 to 16.00
Old steel rails (re-rolling) gross tons	14.50 to 15.00
Old short lengths, gross tons	14.00 to 14.50
Old iron axles net tons	17.00 to 17.50
Heavy melting scrap, gross tons	15.00 to 15.50
Stove plate, net tons	11.00 to 11.50
Heavy turnings, net	9.50 to 10.00
Cast borings, net tons	8.25 to 8.75
Car wheels	15.50 to 16.00

ST. LOUIS.

Pig Iron Market Quiet, but Prices Are Well Maintained.

Oct. 18.

Pig Iron.—The inquiry for 15,000 tons of basic iron received in the St. Louis territory a week ago is still unplaced, but probably will be closed Wednesday—10,000 of it for southern and 5,000 northern iron—and local dealers would not be surprised if the inquiry is increased to 20,000 tons. It is believed today that two concerns will get the order and that delivery will be made over the first half of next year. The price at which the deal will be closed is hinted at today, and if predictions are correct, it will not be less than $15 Birmingham basic for the southern iron, and $1.50 higher for the northern iron.

The iron market is quiet in the St. Louis territory—more so than was anticipated a week ago—but dealers are by no means discouraged, and prices are firm at $15 Birmingham for No. 2, although it is admitted that some southern resale iron can be had at $14.50 for immediate shipment with cash certificate attached.

Sales aggregating probably 15,000 tons were made in the St. Louis territory last week. With the exception of the 15,000 ton inquiry the demand is not great at present. Northern iron is quoted all the way from $19.50 to $21, with very little offered at the lower figure. Our quotations on southern iron delivered, to which the freight of $3.75 from Birmingham has been added, follows:

No. 1 southern	$18.75 to 19.25
No. 2 southern	18.25 to 18.75
No. 3 southern	17.75 to 18.25
No. 4 southern	17.25 to 17.75

Coke.—The coke market remains strong. One large furnace today wired its St. Louis agents not to take any contract orders except upon advice from headquarters, as an advance of 50 cents over the price of two months ago is obtained at present. Connellsville 72-hour foundry coke is offered at $3 to $3.25 for delivery over the remainder of the year, and at $3.25 to $3.50 for first half shipment. Connellsville 48-hour furnace and Stonega coke is quoted at $2.75 to $3 for balance of the year delivery, and at $3 to $3.25 for shipment over the first half of 1910. The freight rate to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields when shipment is destined beyond St. Louis.

Old Material.—The general market for scrap iron is barely holding its own—the pig iron market being more stationary—but there is a fair demand for lighter cast scrap, borings and trimmings, also a good demand for scrap steel axles and rails of all kinds. Our quotations are as follows:

Cast iron borings, free from foreign material, net tons	$ 6.00 to 6.50
Steel axle turnings, gross tons	11.00 to 12.00
Steel railroad axles, net tons	19.50 to 20.00
Iron railroad axles, net tons	22.00 to 23.00
Miscellaneous steel scrap, gross tons	11.00 to 12.00
Old car wheels, gross tons	17.50 to 18.50
No. 1 railroad cast scrap, net tons	12.50 to 13.50
Heavy machinery cast, net tons	14.50 to 15.00
Stove plate and light cast, net tons	10.00 to 11.00
Sheet iron, net tons, uncut	5.00 to 5.50
No. 1 railroad wrought, net tons	13.50 to 14.00
Railroad malleable net tons	13.00 to 13.50
Heavy melting steel, net tons	13.00 to 14.00
Relaying rails, net tons	18.00 to 19.00
Extra heavy cast, requiring breaking	11.50 to 12.50
Railroad grate bars (eng)	10.50 to 11.00

BUFFALO.

Users of Finished Material Have Difficulty in Making Contracts.

Office of THE IRON TRADE REVIEW,
932 Ellicott Sq., Oct. 19.

Pig Iron.—The market appears to have held the strength gained in the past few weeks, but without material change in quotations for deliveries during the remainder of this year. The principal difference has occurred in the price of basic iron, which is now quoted at $17.25 to $17.50 at furnace, for deliveries during the next three months, and for first quarter's deliveries a price of $18.00 to $18.50 is quoted, but even at these prices it is quite difficult now to place orders for this grade of iron, the demand having become so strong for basic in the past few weeks that the output of the local furnaces producing this grade has been nearly covered for the rest of this year and considerable business booked which calls for

deliveries during the early part of 1910.

It is not possible now to purchase No. 2 X foundry at $16.25, the minimum now being $16.50, the price on this grade ranging from $16.50 to $17.00. Quotations on No. 2 X foundry for first quarter's deliveries range from $17.25 up. It was learned today, however, that a price of $18.00 had been secured on this grade f. o. b. Buffalo. An Erie, Pa., furnace placed four cars in this district at $18.00, furnace, deliveries during the next four months, one car each month.

The call for the foundry grades is increasing and a good deal more interest is shown in 1910 iron. Most of the foundry interests anticipate good business during the early part of the year and the Buffalo foundries, which have been depressed in many cases for a long period, are showing more activity, due to the volume of business recently developed here. Greater activity is found among the foundry interests throughout New York state, the improvement being observed at other points in advance of Buffalo. There is some speculation at present as to the attitude of certain foundry interests in delaying the placing of their orders. Many in this territory believe that pig prices would not go up as they have done and there are some interests still debating on the possibilities of the 1910 iron market. Just at present it would appear that the majority of interests expect iron will reach a higher figure during the early part of 1910. We quote for deliveries during the remainder of 1909, f. o. b. Buffalo as follows.

No. 1X foundry	$17.00 to 17.50
No. 2X foundry	16.50 to 17.00
No. 2 plain	16.50 to 17.00
No. 3 foundry	16.00 to 16.50
Gray forge	16.00 to 16.50
Malleable Bessemer	18.00 to 18.50
Basic	17.25 to 17.50
Charcoal	20.00 to 21.00

Finished Material. — The finished material market is in a sensitive and unusual condition here, owing to the fact that the mill interests are sold up for the year and consumers and contractors are finding it extremely difficult to get the tonnage they need delivered when they want it. They are experiencing almost as much difficulty in placing their orders for the first half of 1910. The mill interests, having so much business on hand and being uncertain as to prices and deliveries, are unable to figure definitely with the consumers. A number of cases are reported where substantial business of an ordinarily desirable character has been rejected at the mill because the deliveries could not be made as desired. One instance is noted where specifications for bars to be delivered during the first half of 1910 were rejected at a price of 1.50c, Pittsburg. The contract customers are now beginning to press the mills on first quarter's business and those who placed business early in the year for delivery during the last half are strongly urging mills to make deliveries before the close of the fifth month. Practically no quotations are being made now for deliveries during this year. For the first quarter of 1910, the minimum price of 1.45c on bars f. o. b. Pittsburg, prevails; the prices ranging from 1.45c to 1.50c and on shapes 1.55c to 1.60c, Pittsburg, and it is notable that the mills are quite conservative about accepting business at these prices. Two Pennsylvania independent interests are known to have quoted 1.70c on shapes in this territory and several good orders were taken at this price. The structural specifications are scarce, there having been a falling off in this line.

Bids go in Oct. 20 on about 400 tons structural for the proposed Flickinger building and on the same date bids will be opened on 2,000 tons of reinforcing bars for the Ontario Power Co., which plans the building of a penstock at Niagara Falls, Ont. The structure will be of re-enforced concrete. The Titanium Alloy Mfg. Co., of Niagara Falls, N. Y., is having plans drawn for a factory addition such as will enable it to more than double the output of its plant.

PHILADELPHIA.

Pig Iron Advancing—Outlook for Structural Material Bright.

Oct. 19.

Pig Iron.—Advances to an $18.50 minimum for basic and to $18.00, furnace, for early delivery 2X foundry have characterized the market of the past week, which has witnessed a continuation of the activity recently noted. Even after turning down some attractive tonnages, offered slightly under its price ideas, one selling interest has booked small orders to such an extent that the current month to date is heavier than any full month in years. Basic iron continues to hold the center of interest. One steel plant in this district has bought about 15,000 tons for delivery to April 1, at from $18.00 to $18.50, a part of this business being noted a week ago, and another steel-maker has just closed for 12,000 tons of first quarter iron at $18.50, delivered. Two or three producers are now holding at $19.00 for this period. The Pennsylvania railroad has closed for its first quarter requirements, buying over 1,000 tons of northern charcoal from the Lake Superior interest, 1,300 tons of southern charcoal from the Shelby company, and 3,000 tons of coke car wheel iron as well as 2,400 tons of high silicon foundry from western Pennsylvania makers. The low phosphorus market is active and $22.50, delivered, at local plants, seems the minimum. Considerable British iron has been sold to eastern Pennsylvania and New Jersey consumers. Inquiries now current total about 20,000 tons. Virginia irons are firm on a $16.50 basis and are going into sections heretofore impossible. The car shortage is becoming more serious in the East and is interfering with coke deliveries. Keystone and one Coleman furnace have gone in blast, and the other Coleman and the Marshall stacks will resume about Nov. 1. The Eastern Pig Iron Association meets Wednesday. We quote, eastern Pennsylvania, delivery, over the remainder of this year and the first quarter, as follows:

No. 1X foundry	$19.25 to 20.00
No. 2X foundry	18.75 to 19.50
No. 2 plain	18.25 to 19.25
Standard gray forge	17.50 to 18.00
Basic	18.50 to 19.00
Low phosphorus	22.50
No. 2 Birmingham	19.50 to 20.00
No. 2X Virginia	18.75 to 19.25
No. 2 plain Vigrinia	18.75 to 19.25

Finished Materials.—The railroads are buying equipment more actively. Recent car orders include: Seaboard Air line, 1,000 box and 25 stock cars with the Pressed Steel Car Co. and 15 passenger coaches to Barney & Smith; Norfolk & Western, 2,000 hoppers, 500 boxes, and 500 stock cars, the order being distributed. Lehigh Valley, 1,000 gondolas, 1,000 box cars and 250 miscellaneous, with the Standard Steel Car Co.; Great Northern, 1,000 all-steel cars with the Pressed Steel Car Co. The Middletown Car Co. will rebuild 500 cars and has taken orders for 150 new cars. The American Locomotive Co. has received an order for 50 consolidation type locomotive from the B. & O., which is understood to have ordered well in excess of this number. The N. & W. has ordered ten.

The structural outlook is bright. There is every reason to believe the Kensington track elevation work, on which this city and the Pennsylvania railroad will spend $2,000,000, will develop before long, and the remainder of the Reading work in the city will also be up in due season. Another Stetson building, requiring 1,000 tons of steel, will be ready for figuring

shortly. The Fidelity building at Baltimore will be re-figured.

In plain materials the situation is unchanged, with the exception that plates are available for fairly early delivery. Mills generally are contracting for the first quarter very cautiously. We quote: Structural shapes and plates, 1.65c to 1.85c; steel bars, 1.60c to 1.70c; refined bar iron, 1.55c to 1.65c; sheets, Nos. 18 to 20, 2.50c.

Old Materials.—Following the arrival of the British steamer Winnie with a cargo of billet, rail and shape crop ends, the market has been sentimentally easier. This cargo was of choice material and went to a neighboring steel works, report having it that the importer lost slightly on the movement. No other cargo lots are reported under way, but *The Ironmonger* (London) notes that "steel scrap is being shipped pretty regularly from a number of places to America." The steel offered by the railroads this month went at prices above the combination's offering price. Rolling mill material is strong. We quote, gross tons, delivery at eastern Pennsylvania works, as follows:

Old steel rails (rerolling)	$19.25 to 19.75
No. 1 steel scrap	18.25 to 18.50
Old steel axles	23.50 to 24.50
Old iron axles	28.00 to 29.00
Old iron rails	21.00 to 22.00
Old car wheels	17.50 to 18.00
Choice scrap R. R. No. 1 wrought.	21.00 to 21.50
No. 1 yard scrap	19.00 to 19.50
Machinery scrap	17.00 to 17.50
Low phosphorus scrap	22.00 to 22.50
Wrought iron pipe	17.50 to 18.00
No. 1 forge fire scrap	16.50 to 17.00
No. 2 forge fire scrap, ordinary.	9.50 to 10.00
Wrought turnings	15.50 to 16.00
Axle turnings, heavy	16.50 to 17.00
Cast borings	13.50 to 14.00
Stove plate	14.50 to 15.00

SEATTLE.

Consumers at Last Thoroughly Aroused—Active Demand Results.

Office of THE IRON TRADE REVIEW,
932 Ellicott Sq., Oct. 19.

Forge shops, boiler shops, fabricators, sheet metal workers and all others on the north Pacific coast dependent upon the eastern steel mills for their supply of raw materials are at last thoroughly aroused to an appreciation of the actual conditions prevailing in the iron and steel market and are hastening to cover their requirements for the future and avoid, if possible, vexatious delays in delivery. The problem of deliveries in the far west is always a serious one and with eastern mills rapidly filling up, is becoming more important to the Pacific coast every day. In response to this aroused fear of delayed deliveries, orders for all lines of finished materials, forging billets, steel bars, plates, sheets, etc. are pouring into the local offices of the steel manufacturers. The movement of the heavier products, pig iron and coke, is not quite so feverish although the sales of pig iron are satisfactory and the general tone of the market is very firm. Reverting again to finished materials, there has been little talk up to date of any extensive importations, but in the event of deliveries becoming acutely congested, the Pacific coast will undoubtedly seek relief in the foreign market. The advancing charter rates, however, are discouraging to importers at present.

BIRMINGHAM.

Pig Iron Prices Unchanged—High Price for Heavy Melting Steel.

Birmingham, Ala., Oct. 19.—The market is rather quiet but some inquiry continues to come out for small lots of pig iron. Prices remain unchanged and prompt iron is sometimes sold at $14.50, Birmingham, although some interests are asking $15 and are getting it. First quarter iron is firm at $15, Birmingham, but not a great deal has been sold at that figure as yet. This district is experiencing a scarcity both of coke and labor, and to all appearances production is now practically at maximum.

Coke.—Within the past week, offerings of Virginia cokes have been more numerous, but the local market is unchanged. Complaints of car shortages are being heard in all directions and even foundrymen are providing against the likelihood of being unable to get shipments. Several round tonnages have been sold since last report and with the increase in consumption recently effected, the movement is very close to the high rate recorded early in the year 1907.

Coal.—The demand for domestic grades increases as the season approaches and prices have advanced. Shipments of steam coal against contracts are being urged and the output from local mines is steadily increasing.

Old Material.—Dealers' asking prices are unchanged and the market is fairly active. The most significant transaction recently reported involved a lot of heavy melting steel scrap at $13.75 per ton, Birmingham, which is the highest price paid for that grade since 1907. A fairly satisfactory demand for old car wheels and No. 1 machinery scrap is reported and the light cast and stove plate available is quite inadequate for the requirements of local melters. Additions to stocks of all grades are being made whenever practicable and the attitude manifested by dealers is quite similar to that of local pig iron producers. It is noted that the scarcity of low grade pig iron has become acute while material additions to the consumption of wrought and steel grades are to be made at a not far distant date. The asking prices of local dealers are as follows, per gross ton, f. o. b. cars, here, viz:

Old iron axles	$19.00 to 19.50
Old iron rails	17.50 to 18.00
Old steel axles	17.00 to 17.50
No. 1 R. R. wrought	14.00 to 14.50
No. 2 R. R. wrought	12.00 to 12.50
Old steel rails	12.50 to 13.00
No. 1 machinery	12.00 to 12.50
No. 1 steel	12.50 to 13.00
Old standard car wheels	14.00 to 14.50
Light castings, stove plates	10.50 to 11.00
Cast borings	6.50 to 7.00

BRITISH IRON MARKET.

Low Ocean Rates Operate Favorably for American Exports.

Birmingham, Eng., Oct. 9.—No material change has taken place respecting pig iron. Prices generally are strong, yesterday's quotation for cash being 51s 9d ($12.66) with 52s ($12.72) for one month. While the general position is better than any time in two years, yet stocks continue to increase, the amount in store now being 322,143 tons. Actual business has commenced with the United States. Bookings have been made for scrap iron, hematite and special iron and steel scrap for delivery at Philadelphia, Baltimore and Boston; additional orders are daily looked for. Lower ocean freight rates especially favor American business, as well as the lower duties. Cargoes have been taken this week at 5s 6d a ton, while during the last boom 7s was paid. A vessel is loading 4,000 tons of Cleveland pig iron from Middlesbrough to Boston with a chartered rate of 6s 3d a ton. These American deals have rather excited the market. For mixed numbers, hematite, on the east coast the price is raised to 59s 3d ($14.50), a rise in the quarter of 4s. Official returns of pig iron sales for the quarter show an advance in the averages of only 8.83d, the smallness being likely due to prevalence of low-priced contracts. Still this means an advance of 1 per cent in the North Eastern railway rates on coal, ore, coke and lime stone which rates are based on a sliding scale governed by the official returns.

Finished Material.—There is still a good deal of irregularity in the finished iron and steel departments. The complaint is general as to lack of specifications. Makers find it impossible to proceed with their contracts.

METAL MARKETS.

ST. LOUIS.

Oct. 18.

Lead and Zinc.—The highest price reported for zinc in the Missouri-Kansas-Oklahoma district last week was $52 a ton on a base of $49 for 60 per cent ore. The highest base price paid was $49.59, and this for only one car load in the Prosperity camp. Despite the fact that St. Louis spelter went to $6.10 Saturday, the highest price it has reached in many years, did not suffice to make zinc stronger than it was three weeks ago when spelter was quoted in St. Louis at $5.75, and not nearly so high as it was a month ago when spelter was quoted at $5.35 and zinc ore was selling on a base of $51.50.

A shortage of cars is assigned as the cause. Buyers insist that 6 per cent spelter warrants a base price of $48 a ton for ore. Because of the scarcity of cars, much of the ore purchased is retained in the bins of the mines, as it cannot be shipped. The base price for 40 per cent calamine ranged from $27 for carload lots to $22 for small bunches, some chance lots selling better than $30. Lead ore was weak at $55 a ton with St. Louis pig lead selling at $4.27½.

CHICAGO.

Oct. 19.

New Metals.—Heavy stocks and slow, hand-to-mouth buying have been contributing factors which have produced a fractional decline in the price of lake copper. It is hoped by this concession, to excite some interest in the futures, which have been neglected of late. Spelter has been advancing for some time, on account of the higher prices demanded of the smelters by the miners of the crude ore. Tin is stronger, but unchanged as to price.

We quote as follows: Lake copper, carload lots, 13⅜c to 13½c; casting copper, 13c to 13⅛c; smaller lots, ¼c to ¾c higher. Spelter, 6.10c to 6.15c; lead, desilverized, 4.40c to 4.45c in 50-ton lots; corroding, 25c per 100 pounds higher; sheet zinc, $7.75 list f. o. b. La Salle in car lots of 600-pound casks; pig tin, 31¾c to 32¼c; Cookson's antimony, 10½c; other grades, 9¾c to 10¼c.

Old Metals.—Routine business has been the rule in this line for some time. Former quotations are ruling, and trade has been up to the average.

We quote dealers' selling prices, as follows: Copper wire, 13c; heavy copper, 12¾c; light copper, 11¼c; heavy red brass, 12c; heavy yellow brass, 9¼c; light brass, 6½c; No. 1 red brass borings, 9¾c; No. 1 yellow brass borings, 7½c; brass clippings, 9¼c; tea lead, 3.60c; lead scrap, 4c; zinc, 4½c; tin pipe, 29c; tin foil, 27c; pewter, 20c; electrotype plates, free from wood, 4¼c; electrotype dross, 3c; stereotype plates, 4½c; stereotype dross, 3.50c; prime slab zinc dross, $70 per ton.

NEW YORK.

Oct. 18.

Copper.—The continuation of a record production, coupled with only moderate exportation and limited home consumption, has piled up so heavy a surplus that the present market level is largely artificial, only the support of the leading interests preventing a sag to considerably lower figures. There is a feeling that the speculative element is tiring of its long wait for an advance and may attempt to dispose of its holdings more extensively at any time. We quote Lake at 13c to 13¼c; electrolytic at 12¾c to 13c; and casting at 12½c to 12¾c.

Pig Tin.—With consumption continuing at a very fair rate and the actual situation otherwise unchanged, the market has been subjected to rather violent fluctuations during the week by speculative interests here and abroad. Current selling is on the basis of 30½c to 30¾c for spot shipment.

Pig Lead.—The market continues firm, but rather dull and featureless, with current trading on the basis of 4.35c to 4.40c, New York.

Spelter.—The present price is from 6c to 6.10c, New York, this being the level maintained by the syndicate in control of the situation.

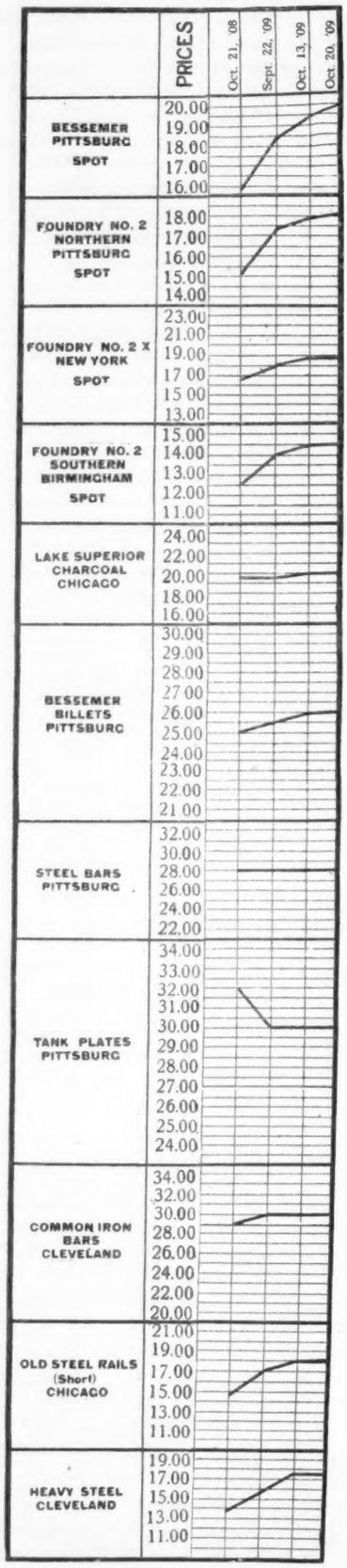
Antimony.—We quote: Cookson's, 8c to 8⅜c; Hallett's and United States, 8c to 8⅛c; ordinary brands, 7¼c to 7½c.

EXTENSION OF DOMINION IRON & STEEL CO.

Toronto, Can., Oct. 19.—The Dominion Iron & Steel Co., of Sydney, N. S., has closed a contract with the Canada Foundry Co., of Toronto, for the construction of an additional blast furnace, an extension to the Bessemer plant, and two 50-ton open-hearth furnaces of the new type, and for the carrying out of the new process in making open-hearth steel. The amount involved is upwards of $500,000. The steel company will also build an additional rod mill, two merchant mills and another mill for the production of finished material.

The furnace of the Pulaski Furnace Co., Pulaski, Va., was blown out Oct. 4 for repairs.

PRICE CHART.



FOUNDRY AND MANUFACTURERS' SUPPLY ASSOCIATION.

The annual meeting of the executive committee of the Foundry and Manufacturers' Supply Association was held at the Cadillac Hotel, Detroit, Tuesday, Oct. 12. A joint meeting was held with the committee representing the Detroit Foundrymen's Association, and F. T. Stephenson, chairman of the Detroit general committee, outlined the plans that had been tentatively decided upon for the 1910 convention. The week of May 30 was suggested as the most desirable time, and the Michigan State Fair Grounds as the most suitable location for holding the meetings of the allied foundrymen's associations, as well as the exhibit of the Foundry and Manufacturers' Supply Association. The buildings will provide ample space for the display of all classes of the Foundry and Manufacturers' numerous railroad sidings, affording excellent shipping facilities. The members of the executive committee of the Foundry and Manufacturers' Supply Association, accompanied by the members of the Detroit general committee, visited the Fair Grounds and all were well satisfied with the accommodations offered.

A. T. Waterfall, president of the American Foundrymen's Association, and Joseph T. Speer, vice president, who is also president of the Pittsburg Foundrymen's Association, attended the meeting of the interests of their organization. Mr. Waterfall stated that favorable reports have been received from the officers of all of the allied foundrymen's associations, and that the hearty welcome extended by the foundrymen of Detroit foreshadows a large attendance. Jos. T. Speer expressed himself as well pleased with the arrangements, and promised that the Pittsburg Foundrymen's Association will, as usual, be well represented. The entertainment features outlined will consist of a moonlight ride on the river, as well as a smoker. For the visiting ladies, a theater party and an automobile sight-seeing trip through the parks and to points of interest in the vicinity of Detroit, have been outlined.

After the return of the executive committee from the Fair Grounds, the business session was continued. The financial report of the Foundry and Manufacturers' Supply Association showed a large surplus, as against a deficit in previous years. It was pointed out by the secretary that when the executive committee met in Cincinnati in February, it was decided to provide against the recurrence of a shortage, and it was agreed to curtail expenses wherever possible and to proportionately increase the cost of space to exhibitors. It was furthermore agreed that in the event of a surplus, such amount in excess of $1,500 should be declared as a dividend to be divided pro rata among the users of space. The financial report was extremely favorable and it was decided that $1,500 be set aside as a sinking fund, and that a dividend from the funds in excess of this amount be declared and paid to those who exhibited in Cincinnati. The books of the association were audited by the International Audit Co., Chicago.

The question of the 1910 meeting was then considered and president F. N. Perkins was instructed to accept the invitation of the Detroit Foundrymen's Association to meet in that city next year. Mr. Perkins announced the resignation of J. H. Whiting of the Whiting Foundry Equipment Co., as a member of the executive committee, and T. S. Hammond of this concern was appointed to fill the vacancy.

The following members of the executive committee were in attendance:

F. N. Perkins, Arcade Mfg. Co., Freeport, Ill.; J. S. McCormick, J. S. McCormick Co., Pittsburg; S. T. Johnson, S. Obermayer Co., Chicago; John Hill, Hill & Griffiths Co., Cincinnati; U. E. Kanavel, Interstate Sand Co., Cleveland; E. H. Mumford, E. H. Mumford Co., Philadelphia; E. A. Pridmore, Henry E. Pridmore, Chicago; J. S. Smith, J. D. Smith Foundry Supply Co., Cleveland; Geo. R. Raynor, Carborundum Co., Niagara Falls, N. Y.; H. R. Atwater, Osborn Mfg. Co.; Cleveland; T. S. Hammond, Whiting Foundry Equipment Co., Harvey, Ill.; C. E. Hoyt, Chicago.

The Detroit general committee which will have the foundrymen's convention in charge, follows: Frank T. F. Stephenson, chairman; Frederic B. Stevens, chairman finance committee; Joseph J. Wilson, chairman visitation committee; James S. Keightly, chairman reception committee; W. P. Putnam, chairman convention sessions committee; Melvin Henry, chairman ladies' theater party and sight-seeing committee; E. J. Woodison, chairman smoker and get-together entertainment committee; Oliver Phelps, chairman boat ride committee.

The net September tonnage which passed through the Soo ship canal was 9,227,190. This was the first time the 9,000,000 mark has been reached.

SHOPS ARE BUSY

In the Baltimore District—Steel Car Works Improvements.

Baltimore, Oct. 18.—The entire trade here is working under pressure. Advances of prices recently do not seem to have checked buying here to any marked degree. Whether seasonal suspensions such as structural work and wire operations will have a quieting effect on the whole market, is problematical, but all branches here are expecting more than a usually busy winter.

The steel rail rolling industry here is unusually active, structural and bridge shops still have all the work they can handle for quick delivery, and the small foundries all report loaded order books.

The most interesting situation locally just at present centers about the transfer of the works of the South Baltimore Steel Car & Fdy. Co. to the Standard Steel Car Co. The deed of transfer is now being drawn, and the next week will probably see the property under the new control. The agents of the Standard are now here taking stock.

An announcement of great interest was made by President John M. Hansen, of the Standard, while here this week looking over the property. He stated that the future of the Baltimore works was assured. The Standard paid $340,000 for the works, the price it brought at a foreclosure sale, and President Hansen said that several hundred thousand dollars would be expended to improve and expand the plant. Already the Standard has bought additional waterfront property to place the works practically on a 30-foot channel in Curtis bay, thus adding deep-water to the rail shipping facilities already had.

An evidence locally of the shortage of certain special lines of iron is had in the laying off by a contractor on the city sewerage disposal plant of 200 workmen. He reported that he was unable to get iron rods used in the reinforced concrete works anything like as rapidly as necessary. Over $75,000 worth of concrete work was done at the works in the past month, and the rod makers were unable to keep up deliveries to meet the rush when they were being pressed in the same way from many other quarters.

Ocean freight charters for rails are in ample supply. The last schooner charters from Sparrows Point were of the schooners Pendleton Sisters, to Fernandina at $1.75; the schooner E. Jones, to Savannah at $1.75; the steamor Hector to Galveston, at $2.

CONSPIRACY CHARGE

Said to be a Rataliatory Measure—Suit Against Defense Association.

Chicago, Oct. 16.—Suit was entered in the Superior Court this week, by A. J. Lindemann, Hoverson & Co., against the Stove Founders' National Defense Association, charging a conspiracy in restraint of trade on the part of the association. The bill asked for the appointment of a receiver. The "conspiracy," as alleged by the complainants, consisted, in part, in the recent advance in wages of iron molders agreed to by the Defense Association.

The secretary of the association stated to THE IRON TRADE REVIEW that there is nothing illegal about the organization, that it is not acting in restraint of trade and has nothng whatever to do with prices. The object of the association is to treat with labor organizations, on wage matters and kindred subjects, and to reach amicable settlements of such questions, in which it has been markedly successful, as it has not had a strike to face in 20 years.

The association further claims that the complainants, when they became members, were asked to pay their proportional assessment into the emergency fund, which they did only in part, giving their note for the balance. Collection of this note has been resisted, it is claimed and suit was begun to compel payment. The association claims that the suit for the appointment of a receiver is simply a retaliatory measure, has no basis upon which to stand, and will be thrown out of court. The emergency fund above referred to amounts to $150,000, at the present time.

NORTHWEST FOUNDRY FOREMEN ORGANIZE.

At an enthusiastic meeting held recently at the Chamber of Commerce, Seattle, steps were taken to organize an association for educational purposes among the foundry foremen of the Puget Sound district.

George B. James, president of the Variety Iron Works, Seattle, spoke of the great need for such an organization among the foundry foremen. Mr. James pointed out the value of the educational work being done by the technical journals and showed how an organization of interested men could by intimate personal discussions derive even greater educational benefits.

R. D. Wood, representing the foundry foremen of Tacoma, spoke in favor of the organization and promised the support of the foundrymen of upper Puget Sound. A number of other speakers, among whom were H. W. Sumner, J. H. Linton, H. S. Hastings and A. W. Gregg, made remarks indicating the degree of interest the foundry foremen are taking in the movement.

At the conclusion of the meeting, the following provisional organization was formed: president, George James; secretary, H. S. Hastings; committee on constitution and by-laws, R. D. Wood and H. Cole Estep.

SHEET MILLS STARTED

At Brackenridge, Pa., by the West Penn Steel Co.

The West Penn Steel Co. has started operating its new sheet plant and steel works at Brackenridge, Pa. The 80-ton furnace in the open-hearth department has been under fire for several weeks past, furnishing steel to the sheet bar mill which has also been operating. This week the three sheet mills were started and it is expected that a fourth mill, now being installed, will be in shape for operating in a few weeks. The West Penn Steel Co., which is a new organization in the iron and steel industry, will make a specialty of pickled, cold rolled and electric sheets. Its offices are in the Keystone building, Pittsburg.

BOUGHT AT RECEIVER'S SALE.

The plant of the Refined Iron & Steel Co., located at Shousetown, Pa., just outside Pittsburg, has been bought at receiver's sale by the J. P. Koehler Co., Pittsburg, old material dealer. The plant is a muck mill proposition. No decision as to plans has been announced by the purchaser.

TIDEWATER SALE STANDS.

Harrisburg, Pa., Oct. 18.—Word has been received here that the Delaware county court had refused to set aside the sale of the plant of the Tidewater Steel Co., at Chester, Pa., but has issued an order permitting the books of the company to be open to inspection. The property was sold recently to attorneys representing Youngstown, O., people, for $305,100. Contention was made by attorneys for some of the shareholders and interested parties that the price was too small.

EASTERN PIG IRON MEETING.

Philadelphia, Oct. 19.—The regular meeting of the Eastern Pig Iron Association will be held on Thursday. It is anticipated that stocks will show little change.

SHEET AND TIN PLATE PLANTS

Acquired by the Union Sheet & Tin Plate Co., of Pittsburg.

The Union Sheet & Tin Plate Co., Pittsburg, which was recently chartered, has purchased the plant and business of the Hazleton Sheet Steel Co., at Hazleton, Pa., and the sheet steel and tin plate plant at Marietta, O., and is now accepting business for early shipment. The Hazleton plant includes rolling mills, galvanizing works and steel roofing factory for the manufacture of high grade black and galvanized flat or corrugated sheets and all forms of steel roofing products, eave troughs, conductor pipe, etc. The Marietta plant is equipped to manufacture black plate, tin plate, terne plate and special finished sheets. The company will make a specialty of high grade electrical, uniform blue, white annealed, deep drawing and other special finished sheets. The Hazleton plant and the sheet mills of the Marietta works are being placed in operation, but the tinning works at the latter place will not be running before Jan. 1, 1910. It is the intention of the company to make improvements to both plants in the near future, which will consist of one and probably two sheet mills at Marietta and an additional sheet mill at Hazleton.

The officers of the new company are as follows: President, W. D. Park, Asbury Park, N. J.; vice presidents, Percy F. Hogan, New York, and E. C. Shapley, Philadelphia; secretary, L. C. Taylor, Pittsburg; treasurer, F. M. Stephenson, Pittsburg; general manager, Geo. I. Stanford, Bridgeport, Conn. Mr. Hogan is of the firm of Hogan & Son, New York, iron and steel jobbers, while Mr. Stanford has been associated in an executive capacity with a steel interest of Bridgeport, Conn. The company has opened general offices in the Farmers' Bank building, Pittsburg.

ENLARGING SHEET MILLS.

The Empire Iron & Steel Co., of Niles, O., of which Jonathan Warner is president, has let contracts for additions which will include two more hot mills in the sheet department and an addition 200 feet long to the roofing department. Stirling boilers are being added and a C. & G. Cooper engine.

The Standard Tin Plate Co., of Washington, Pa., has filed notice of increase of capital stock from $300,000 to $500,000.

FEW VESSELS LOST

Through the Storm—Advance Expected in Some Rates.

Aside from serious delays in the movement of vessels the storm which raged on the lakes the past week exacted no considerable toll in vessel property, the George Stone being the only one actually to founder. The steamer J. B. Trevor of the Pittsburg Steamship Co.'s fleet has suffered much damage. She went ashore at Isle Royal with a cargo of coal and for three days was subjected to the pounding of the northwest seas. The sea has forced her 150 feet further upon the beach than she was when she stranded. Her main engine has been forced up about 6 inches and it is expected that her bottom is nearly all gone. The wrecker Favorite is now jettisoning her cargo of coal, and the Trevor will be out of commission the balance of the season.

Low water caused the stranding of the steamer J. H. Sheadle at Buffalo harbor and she too has been driven pretty well into the beach. She was released after lightering 2,000 tons of ore and after the stages of water had risen.

The report that the Western Dry Dock & Ship Building Co. of Port Arthur, which is practically an arm of the American Ship Building Co. has completed arrangements for the construction of two 600-footers, lacks confirmation, although the report is probably not without some foundation.

The first of the two steamers building at the Lorain yard of the American Ship Building Co. for the Pittsburg Steamship Co. will be launched on Saturday next, Oct. 23, and will be named in honor of William B. Schiller, president of the National Tube Co.

Ore shippers are taking all the tonnage that is offered and will be glad to get more. Notwithstanding the demand for ore tonnage, however, there is no expectation of an advance in rates. The wild rate remains the same as the contract rate and probably will continue so. Grain men, however, will have to increase their bids as the present rate does not attract tonnage. In fact the vessel owners are turning down grain shippers daily.

Owing to shortage of cars coal receipts at Lake Erie ports are light, but vessels are also very scarce. The northwest is, however, beginning to wake up to its coal necessities and this trade will probably continue stiff until the close of the season.

An advance may also be expected in lumber as all available tonnage in this trade is now practically tied up.

NEGOTIATIONS FOR PURCHASE OF FURNACE OF HAMILTON IRON & STEEL CO.

Negotiations are under consideration for the control of the furnace property of the Hamilton Iron & Steel Co., at Hamilton, O. It is reported that three propositions have been made to the stockholders of the company. One of these proposals is for a 10-year lease from Nov. 1, and comes from M. L. Sternberg, of Cincinnati, and associates, among whom is Eugene Zimmerman. The other two are from Cincinnati pig iron firms. The negotiations are expected to culminate in a few days. A meeting has been called for Oct. 25, at which time decisive action is likely to be taken.

The Hamilton company's stack is 80 x 18 feet, with an estimated annual capacity of 100,000 tons. It has four Kennedy central combustion stoves 94 x 20 feet, and uses by-product coke. The stack is a new one, completed May 1, 1908, but not lighted until Aug. 22, last year. It has been out of blast since May 7 of this year. The officers of the Hamilton company are: President, G. L. Pearson; vice president, Edwin N. Ohl; secretary and treasurer, R. Field.

ATIKOKAN PIG IRON.

The Atikokan Iron Co., Ltd., Port Arthur, Ont., blew in its furnace, for the second time in its history, during August of this year. Since that date, it has been producing foundry and malleable iron at the rate of approximately 100 tons per day. The policy of this furnace is to ship a considerable proportion of its output to the vicinity of such consuming centers as Toronto and Hamilton, very favorable rates having been procured for both rail and water shipment. The characteristics of the "Atikokan" are: its strength, and, at the same time, its softness. It is well suited for machinery castings or stove plate and radiator work. The selling agents for the Atikokan Iron Co. are Rogers, Brown & Co., at their various offices.

N. F. A. Convention.—Announcement that the National Founders' Association will meet in annual convention at Hotel Astor, New York City, on Nov. 9 and 10.

The Sheffield Coal & Iron Co., Sheffield, Ala., has rebuilt its No. 2 stack and will blow it in shortly while at the same time beginning work on No. 3 stack. No. 1 stack may be retained as an auxilliary.

KEYSTONE BLEW IN.

All Departments of Reading Iron Co. Are Operating.

Reading, Pa., Oct. 18.—After an idleness of over four months Keystone furnace of the Reading Iron Co., which, owing to much needed repairs, went out of blast on June 1, resumed operations today. During the idleness of the furnace the stack was entirely rebuilt and slightly enlarged. Two cast houses have been erected. All of the wooden floors about the stock house have been removed and concrete substituted. The boilermakers and others employed in making the repairs will be sent to Emaus to complete the work there. Superintendent Broden expects to have this stack ready by the first of January. In 1888, when Mr. Broden took charge of the furnaces, they did not exceed a total of more than 175 tons a day. Now the three, which include the Temple, Keystone and Emaus, can produce 700 tons a day, or 4,900 tons a week, when all are in operation.

The Reading Iron Co. now has in the neighborhood of 3,700 men on its payrolls. Every department is in full operation. Nearly or quite 2,000 men are employed at the tube works. Thus far this year the company has done a fine trade.

The mechanics at the Scott Works are busy getting out machinery for the new mill at Seventh and Laurel streets. They started on this work more than a year ago and have made considerable headway. The iron work at the new plant was finished some weeks ago, but there has been some delay on the part of the contractor in putting on the roof. The management is desirous of having this completed before the cold weather sets in.

LATE NEW YORK NEWS.

(Special Telegram.)

New York, Oct. 20.—John H. Nicholas, assistant general sales agent of the Lackawanna Steel Co., resigned Oct. 15, to become vice president of the Lackawanna Bridge Co. This interest, which will be in operation by Jan. 1, with an annual capacity of 40,000 tons, has opened an office at Fifth and Church streets, New York city, in charge of Jason Haige.

The Illinois Steel Co. reports scattered rail sales of 5,000 tons.

The B. & O. has placed its coal car distribution on the percentage basis in the Maryland mining districts. The shortage of coal cars in West Virginia is even more pronounced.

LARGE TONNAGES OF BILLETS SOLD.

(Special Telegram.)

New York, Oct. 20.—Two large sales of billets, one of 10,000 tons for quick shipment, have been made by an interest which bought heavily several months ago. The same interest has cleared out large accumulations of pig iron on two furnace yards, one of these including about 25,000 tons of malleable not of standard grade.

Pipe works have bought briskly of late, one sale being 5,000 tons. The activity is holding up well.

CRUCIBLE STEEL MEETING.

(Special Telegram.)

New York, Oct. 19.—At the annual meeting of the Crucible Steel Co. of America, today, the stockholders unanimously voted to amend the articles of incorporation by addition of the following:

"The Corporation may also purchase or otherwise acquire and hold, sell, assign, transfer or otherwise dispose of shares of its own corporation stock."

The retiring directors were re-elected.

MERGER COMPLETED.

Toronto, Canada, Oct. 18.—It is announced that the merger between the Rhodes-Curry Co., the Canada Car Co. and the Dominion Car & Foundry Co. has been completed. The capitalization is placed at $12,000,000 being $5,000,000 common stock, $3,500,000 preferred stock and $3,500,000 bonds. N. Curry of the Rhodes-Curry Co. will be general manager and the Amherst plant and one of those at Montreal will be run. The bonds and a large proportion of the preferred stock have been disposed of in London.

COLORADO FUEL ELECTION.

New York, Oct. 19.—J. D. Rockefeller Jr. yesterday was elected a director of Colorado Fuel & Iron Co., to succeed the late E. H. Harriman. L. M. Bowers was elected chairman of the board. Judge C. D. Beaman, for many years general counsel and secretary of the company, will retire Jan. 1 and will be succeeded as counsel by Jos. Chilberg, of Denver.

LARGE ORDERS FOR STEEL WHEELS.

The Forged Steel Wheel Co., a subsidiary of the Standard Steel Car Co., Pittsburg, has taken a large steel wheel order for the new freight cars recently awarded by the Chesapeake & Ohio railroad. This line recently placed orders for 3,500 cars, of which 2,000 will be built by the Standard Steel Car Co., 1,000 by the American Car & Foundry Co., and 500 by the Pressed Steel Car Co. The steel wheels for this equipment, or 28,000 in all, will be furnished by the Forged Steel Wheel Co.

SALE OF BESSEMER.

The Bessemer Pig Iron Association has sold 20,000 tons of Bessemer pig iron to the Jones & Laughlin Steel Co. for December and January delivery at $19, furnace.

ADDITIONAL CAR ORDERS.

(Special Telegram.)

Pittsburg, Oct. 20.—The Pressed Steel Car Co. has been awarded 2,000 steel hopper cars by the New York Central Lines as a part of a large block of cars just placed by that road. The Pressed Steel Car Co. also recently received 600 additional steel coke cars of the gondola type to be built for the P. & L. E. railroad, a part of the New York Central system. The American Car & Foundry Co. has taken 500 stock cars from the Norfolk & Western.

The Ohio Fuel Supply Co. is in the market for 500 tons of oil country goods for immediate shipment.

NEW PLANTS AT GARY.

(Continued from first page.)

its intention to begin immediately the construction at its South works of an additional structural mill having an estimated capacity of 15,000 tons monthly. The completion of this mill will give the South works capacity for producing a total of 45,000 tons of structural material monthly. Construction work is to begin immediately and be vigorously pushed with a view to early completion of the plant in order to meet the rapidly increasing demand for structural steel tributary to the Chicago market.

OFFERS DECLINED.

(Special Telegram.)

Pittsburg, Oct. 20.—Offers of $17.50, valley, for basic for this year and first half of next have been made by buyers in outside territory, but have not been accepted.

PERSONAL.

Alexis W. Thompson, president of the Inland Steel Co., has been added to the executive committee of the Southern Iron & Steel Co.

B. J. Rosensteel has been named superintendent of the plant of the Niles Forge & Mfg. Co. of Niles, O., which began partial operations this week.

F. V. Freeman, engineer of construction of the New York Central railroad, has been appointed chief engineer of the Boston & Albany railroad, to succeed Everett E. Stone, resigned.

Richard Hart has been elected secretary of the Colorado Fuel & Iron Co., to succeed Judge C. D. Beaman, who retires Jan. 1. James McNaughton, vice president of the American Locomotive Co., has been elected a director of the Colorado company.

Burton A. Shutts has been appointed in charge of the Bird Coleman and North Cornwall furnaces of the Lackawanna Iron & Steel Co. Mr. Shutts will be succeeded at the West Lebanon furnace by James Duane, formerly with the Pennsylvania Steel Co., at Steelton.

G. G. Stecher has been appointed superintendent of the Toledo, O., plant of the Republic Iron & Steel Co., which resumed operating this week. Robert Saxton, formerly chief clerk at the shafting works of the Mahoning Valley plant, will be chief shipper at Toledo.

Herbert E. Miles, president of the Racine-Satley Co., of Racine, Wis., for 25 years, has resigned to retire from active business. George A. Yule has been chosen to succeed Mr. Miles, who will still retain his interest in the company. Mr. Miles is chairman of the foreign commerce committee of the National Council of Commerce, and will devote considerable of his time to tariff matters.

OBITUARY.

William J. McKenney, of W. G. McKenney & Co., Pittsburg, iron and steel, died Oct. 16, aged 58., from injuries sustained by being struck by a trolley car. He had been identified with the McKenney company for a number of years.

Robert McKechnie, collector of customs at Dundas, Ont., died unexpectedly Oct. 17, aged 74. Born in Scotland, he went to Canada in 1843. About 50 years ago, in partnership with John Bertram, he established a tool manufacturing plant in Dundas under the name of McKechnie & Bertram. He afterward built the McKechnie shops at Hamilton, afterward acquired by the Westinghouse company. He was one time vice president of the Dominion Board of Trade and president of the Canadian Manufacturers' Association.

Upward Trend of Stocks Resumed

Stocks resumed their upward trend last Thursday after the course of the market earlier in the week had indicated a continuance of the recent weakness. United States Steel was again the leading factor in the market. The Bank of England raised its discount rate to 4 per cent and the Imperial Bank of Germany advanced its rate to 5 per cent, the increase being 1 per cent in each case. Call money in New York held firm, but did not advance.

Monday the market was active and weak. The increase in the rate of the Imperial bank was announced and the copper situation was affected by the announcement of 15,800,000 pounds increase in the stock of unsold copper. Tuesday the stock market was closed for Columbus day, but the weakness of Steel common was reflected in London, where it underwent a sharp decline. Wednesday the market was weak and lower at the opening but closed higher. Time loans were firm and showed a tendency to advance. Steel common made up about a third of the market and began an advance that was carried over to Thursday, when it shot up 4 points. The increase in the Bank of England rate was announced that day, but seemed to be ignored in New York so far as the course of the market was concerned. The Hawley interests announced that they had secured control of the Missouri, Kansas & Texas railway. Friday Steel common continued to be the most active stock, but Amalgamated Copper, St. Paul and Union Pacific were also active. Saturday the market was active and irregular. The bank statement showed considerable increase in the reserves.

Call money ranged from 4 to 5 per cent with 4¾ for the average. Time money advanced steadily until Friday when there was a moderate recession.

Bank clearings for the United States showed a decline of $407,500,000 from the $3,767,918,000 recorded the week before, that having been the highest point ever reached. The clearings for the corresponding week the year before were $2,776,022,686.

The actual report of the clearing house banks in New York showed loans decreased $24,137,800, deposits decreased $23,283,500, surplus increased $8,291,575 and the ratio of reserve 26.2 against 25.6 the week before. Trust companies and non-member banks showed loans and investments decreased $25,208,500, deposits decreased $28,510,200 and the percentage of reserve 17.3 against 17.1 the week before.

Exports of gold for the week amounted to $110,000 against imports of $193,515. Commercial failures for the week numbered 242 which compares with 192 the week before and 269 for the corresponding week last year. Liabilities in failures reported during the month up to Oct. 16 were $4,605,321 against $5,632,672 for the corresponding period last year. The number of shares dealt in on the New York exchange was 4,084,900 against 5,062,800 the week before and 2,671,687 the corresponding week last year. Bonds to the value of $16,810,000 were sold which compares with $27,942,000 the week before and $20,691,000 the corresponding week in 1908.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo. Oct. 16	Changes in week	Date 1909 Ann. M't'g.	Stock Outstanding	Dividend Basis	Dividend Last Declared	Dividend Date Last Div. Pay.
Allis-Chalmers	15	+ ¼	Sept. 2	$19,820,000		2½ Q.	.....
Allis-Chalmers, pr.	52½	— ¾		16,150,000	7 cum.	.....	Feb., 1904
American Can	12¼	.....	Feb. 2	41,233,300		1¾ Q.	.....
American Can, pr.	82¾	+ ¾		41,233,300	7 cum.	.....	Oct., 1909
Am. Car & Fdy.	70⅞	+1⅜	June 24	30,000,000		1¾ Q.	Oct., 1909
Am. Car & Fdy., pr.	118⅜	.....		30,000,000	7 n. c.	½ Q.	Oct., 1909
American Loc.	60	+1½	Oct. 19	25,000,000	5	1¼ Q.	Aug., 1903
American Loc., pr.	115	— ¾		25,000,000	7 cum.	1¾ Q.	Oct., 1909
American Ship	67½	+ ⅜	Oct. 13	7,600,000	4	1¾ Q.	Oct., 1908
American Ship, pr.	110⅜	+ ⅜		7,900,000	7 cum.	1¾ Q.	Sept., 1909
Am. Steel Foundries(new)	61½	+ ⅞	Dec. 2	17,184,000		1¾ Q.	.....
Barney & Smith	40	.....	June 1	2,000,000	4	.....	Sept., 1907
Barney & Smith, pr.	100	.....		2,500,000	8 cum.	1 Q.	June, 1908
Bethlehem Steel	34¼	+1¼	April 6	14,862,000		2 Q.	.....
Bethlehem Steel, pr.	65	—3¾		14,908,000	7 n. c.	.....	Feb., 1907
Cambria Steel	47¼	+1	Mar. 16	45,000,000*	3	¾ Q.	Aug., 1909
Cambria Iron	46¾	+ ¼		8,468,000*	4	1½ S. A.	Sept., 1909
Chicago Pneumatic Tool	30¾	—1¼	Feb. 15	6,145,000	4	2 S. A.	Oct., 1907
Colorado Fuel	45	+1	Oct. 18	34,235,500		1 Q.	April, 1902
Crucible Steel	14¼	+ ¼	Oct. 20	24,578,400		3½	.....
Crucible Steel, pr.	84⅛	+1⅜		24,436,000	7 cum.	1½ Q.	Sept., 1909
Empire Steel	10	—3	April 27	1,254,770		1 Q.	.....
Empire Steel, pr.	70	—2		2,500,000	6 cum.	.....	July, 1909
Fay & Egan	90	.....	Feb. 18	1,000,000	7	3 S. A.	Nov., 1908
Fay & Egan, pr.	110	+10		1,000,000	7 cum.	1¾ Q.	Aug., 1909
General Electric	164½	+ ¼	May 11	65,179,600	8	2 Q.	Oct., 1909
Harbison-Walker	31	+4½	Jan. 18	18,000,000		2 Q.	Oct., 1907
Harbison-Walker, pr.	95	.....		9,600,000	6 cum.	1½	Oct., 1909
International Pump	49	+1½	June 8	17,762,500		1½ Q.	April, 1905
International Pump, pr.	89¾	+ ¾		11,350,000	6 cum.	1½	Nov., 1909
Lackawanna Steel	57¾	+ ¾	Mar. 10	34,971,400		1½ Q.	.....
Lake Sup. Corp.	29	—1½	Oct. 6	40,000,000		.....	.....
New York Air Brake	87⅜	— ⅛	June 17	10,000,000	8	.....	Oct., 1907
Niles-Bement-Pond	100	.....	Feb. 3	8,500,000	3	2 Q.	Sept., 1909
Niles-Bement-Pond, pr.	100	.....		2,000,000	6 cum.	1½ Q.	Aug., 1909
Otis Elevator Co.	56	—1	Mar. 15	6,375,300		1½ Q.	Oct., 1909
Otis Elevator Co., pr.	97	.....		6,295,000	3 n. c.	1½ S. A.	Oct., 1909
Pa. Steel	66	.....	May 10	10,750,000		1½ Q.	.....
Pa. Steel, pr.	117	.....		16,500,000	7 n. c.	.....	May, 1909
Pittsburg Coal Co.	20⅝	+ ⅛	Mar. 9	32,000,000		3½ S. A.	.....
Pittsburg Coal Co., pr.	60	— ¾		32,000,000	7 n. c.	.....	April, 1905
Pressed Steel Car	47¾	+1	Feb. 17	12,500,000		1 Q.	Aug., 1904
Pressed Steel Car, pr.	105¼	.....		12,500,000	7 n. c.	1¾ Q.	Aug., 1909
Pullman	190	— ¼	Nov. 10	100,000,000	8	2 Q.	Aug., 1909
Railway Stl. Spring	47	+ ½	Mar. 4	13,500,000	2	1 S. A.	Oct., 1908
Railway Stl. Spring, pr.	109	+1		13,500,000	7 cum.	1¾ Q.	July, 1909
Rep. Iron & Steel	46½	+ ¾	Oct. 20	27,191,000		.....	10 .....
Rep. Iron & Steel, pr.	106½	+ ¼		20,416,900	7 cum.	2½ Q. †	Oct., 1909
Sloss-Sheffield	93¼	+1¼	Mar. 10	10,000,000	5	1¼ Q.	Sept., 1909
Sloss-Sheffield, pr.	120	+1		6,700,000	7 n. c.	1¾ Q.	Oct., 1909
U. S. Pipe & Fdy. Co.	31¾	+ ¼	June 23	12,106,300	2	1 Q.	Dec., 1907
U. S. Pipe & Fdy., pr.	85⅞	+ ¼		12,106,300	7 n. c.	1¾ Q.	Sept., 1909
U. S. Steel	91⅞	+4⅝	April 19	508,302,500	3 n. c.	¾ Q.	Sept., 1909
U. S. Steel, pr.	128¾	+1⅜		360,781,100	7 cum.	1¾ Q.	Aug., 1909
U. S. Steel, 5s	114¾	.....		463,798,000	5	1¾ Q.	.....
Va. Iron, Coal & Coke	70	.....	Sept. 21	9,073,680		5 A.	.....
Westinghouse Elec.	86	.....	June 16	27,173,200	10	2½ Q.	Oct., 1907
Westinghouse Air Brake	143	—2	Oct. 5	14,000,000		2½ Q.	Oct., 1909

Par value of shares, $100, except those starred (*), $50.
†Includes deferred dividend of ¾ of 1 per cent.

Copper Stocks.

New York.—Amalgamated copper closed 83⅜, increase 2¼.

Boston.—Butte Coalition closed 25, increase ⅛; Calumet & Arizona closed 100, unchanged; Calumet & Hecla closed 660, decrease 10; North Butte closed 59, increase ¼; Quincy closed at 87, unchanged.

Financial Notes.

The International Steam Pump Co. has declared its regular dividend of 1½ per cent on the preferred stock payable Nov. 1 to stock of record Oct. 8.

LaBelle Iron Works has declared its regular quarterly dividend of 2 per cent payable to stock of record Oct. 23.

The semi-annual dividend of 3½ per cent on the preferred has been declared by the Pennsylvania Steel Co., payable Nov. 1 to stock of record Oct. 16.

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THE AVERAGE PAID CIRCULATION OF THE IRON TRADE REVIEW FOR THE ISSUES OF THE FOLLOWING MONTHS WAS:

January	5,506
February	5,346
March	5,396
April	5,508
May	5,533
June	5,551
July	5,572
August	5,597
September	5,609

October 21, 1909

IRON ORE IMPORTS.

The proposal of eastern pig iron makers to import a total of 3,150,000 tons of iron ore in 1910, the details of which have been set forth in THE IRON TRADE REVIEW of recent date, has aroused considerable discussion. The tonnage proposed to be imported from various foreign countries for next year is far larger than that imported in any previous year, in fact over twice that of 1890, the heaviest up to this time in the history of the American iron and steel trade. In reply to many inquiries as to just the relation these proposed ore importations will bear to the production of Lake Superior and other United States ores, it may be said that the proposed importation would be the largest compared with the production of American ores since the Mesabi range became a large shipper. Whether the importations planned for next year will actually be made, will depend largely upon the extent to which ocean freights shall advance.

Careful search of the records discloses the fact that since 1870, when iron ore imports first became a matter of more or less accurate record, foreign importations have always been made in "boom years." Prior to 1879, the quantity imported in any one year did not reach 100,000 tons, but in 1879 it had reached 284,141 tons; and in 1881 the total was 782,887 tons. The first heavy importations came in 1886, when 1,039,433 tons were docked at various Atlantic coast and lake ports. Again in 1887, a total of 1,194,301 tons was imported. The year 1890 was distinguished by the largest ore importations up to the present time, 1,246,830 tons. Imports then dwindled below the million mark until 1902, when they rose to 1,165,470 tons. Again they fell until 1906, when they reached 1,060,390 tons; in 1907, 1,229,168 tons. In 1908 they had fallen to 776,898 tons, mostly from Cuba.

In the year 1886, when the pig iron production had increased 40.5 per cent over the preceding year, the total iron ore production of the United States had increased 20 per cent, the total ore imports of that year, 1,039,433 tons, were 9.4 per cent of the country's total ore consumption. In that year the Lake Superior region supplied 32.3 per cent of the total ore consumed; the total imports were just 29.1 per cent of the Lake Superior production, which itself had increased 44.6 per cent over 1885.

In 1887, when the pig production had increased 12.9 per cent over that of 1886, and the iron ore production of the country had increased 13 per cent, the imports were 9.5 per cent of the total ore consumption. The Lake Superior production was 37.9 per cent of the total consumption; the imports were 25.2 per cent of the Lake Superior production, which, in 1887, had increased 30.6 per cent over that of the preceding year.

In the heretofore banner importation year of 1890, when the pig production had increased 21 per cent and the total ore production 13.7 per cent, the imports were 7.2 per cent of the total consumption; the Lake Superior production was 52.1 per cent of total consumption; and the imports were 13.8 per cent of the Lake Superior production, which had increased 23.5 per cent over that of 1889.

In 1902, another "boom" year, when the pig production had increased 12.2 per cent over 1901, and the total ore production had increased 23 per cent, the imports were 3.1 per cent of total consumption; the Lake Superior region supplied 75 per cent of the consumption; and the total imports were 4.2 per cent of the Lake Superior production, which itself had increased 33.8 per cent over that of 1901.

Again, in 1906, when the pig production had increased 10 per cent, and the total ore production 17.3 per cent over those of 1905, the imports of ore were a little less than 2.2 per cent of total consumption; the Lake Superior region supplied 79 per cent of the total consumption; and the imports were 2.7 per cent of the Lake Superior production, which had increased 12.2 per cent over that of 1905.

In 1907, when the pig production of 25,781,361 tons was an increase of almost 1.9 per cent over 1906 and the total ore production of 51,720,619 tons was also an increase of 8.3 per cent, the imports were 2.3 per cent of the total consumption; the Lake Superior production was 79.8 per cent of the total consumption; and the imports were 2.9 per cent of the Lake Superior production, which, in turn, had increased to 42,266,669 tons, or 9.5 per cent of that of 1906.

In 1908, when the pig production of the country had decreased to 15,936,018 tons, a loss of over 38.1 per cent; and the total ore production had also decreased to 35,983,336 tons, or a loss of 39.4 per cent, the imports were 2.1 per cent of total consumption; the Lake Superior production was 70.7 per cent of total consumption, and the imports were 2.1 per cent of the Lake Superior production, which had decreased to 26,014,987 tons, a loss of 38.4 per cent.

Bearing these facts in mind, it would appear that the proposed imports for next year will be but normal for a year

of extraordinary activity in the iron and steel trade. Taking the proposed imports as 3,150,000 tons; the probable ore consumption of the country, which includes imports, as 56,150,000 tons, a conservative estimate; the total Lake Superior production as 44,000,000, which now seems to be an extremely conservative estimate; and the total pig production in 1910 as 27,750,000, which also appears low considering the present rate of production and the numerous proposals to blow in new and repaired old stacks; therefore, it would seem that the proposed imports will be about 5.6 per cent of total consumption; the Lake Superior production will be about 78.3 of total consumption, and the imports will be about 7.1 per cent of the probable Lake Superior output.

If, as some entirely competent authorities feel assured, the pig iron production in 1910 reaches 30,000,000 tons and the total Lake Superior ore production amounts to 50,000,000 tons, as is not unlikely, the proposed total imports will be about 5 per cent of total consumption; the Lake Superior output will be 80.4 per cent of total consumption; and the imports will be about 6.3 per cent of the Lake Superior production.

PROGRESS OF THE OPEN SHOP.

The refusal of employes of the Massillon Rolling Mill Co., Massillon, O., members of the Amalgamated Association, to follow the order of the organization's officials to strike recently, created no surprise in the mind of any careful observer. Nor did the abandonment of the Massillon field by the national president of the rolling mill men's organization, accompanied by a body of strikers from other cities detailed as pickets for this special occasion. Nor does the official intimation of the Deforest Sheet Steel Co., Niles, O., which will shortly start its new plant, that it proposes to operate on the open shop principle.

Both these new mills are but following the lead of the largest producers, both independent and subsidiary to the United States Steel Corporation. For, the American Sheet & Tin Plate Co. and the Youngstown Sheet & Tube Co. are running along nicely and appear to have won their contention for the open shop. Since these large producers, not to mention other competitors in the northern Ohio manufacturing districts, are strongly intrenched behind the open shop principle, how can the smaller producers hope to compete without being placed upon an equally favorable manufacturing basis?

Up to within a few years, following the Homestead struggle, the Mahoning and Shenango valleys boasted of being the "backbone of the Amalgamated Association." It would appear that the backbone has steadily been moving farther westward.

ALLIS-CHALMERS REPORT

For Past Year Reflects Aftermath of 1907 Depression.

The Allis-Chalmers Co. has made public its annual report for the fiscal year ending June 30, 1909. The gross earnings were $1,809,009.37, and net earnings $135,431.75. Expenditures for maintenance, repairs and renewals amounted to $668,218.17; reserves for depreciation on buildings, machinery and other expenses, $284,776.83; interest on bonds and notes payable, $720,582.62.

During the year there was a gain of more than $1,000,000 in working capital, which is at present $8,715,640.55. In the last quarter, there were sold $828,000 par value, first mortgage bonds, to reimburse the treasury on account of capital expenditures at West Allis and other works. The capital assets, including real estate, buildings, machinery, patterns, drawings, good will, etc., are placed at $37,548,052.66, a gain of $50,165.36 since June 30, 1908. Walter H. Whiteside, president of the company, says: "During the past year the company suffered with other industrial corporations from a businesss depression which existed for three quarters of the preceding year, continued with little change throughout the first half of the fiscal year, ending June 30, 1909. This condition, was reflected in the volume of the company's sales, which compelled the works to be operated during the year at about 50 per cent of the normal capacity, and although improved methods decreased the cost of production, yet the fixed charges necessarily continued nearly constant, and prevented the company from showing for the year larger net earnings.

"New business booked commenced to show substantial gains in January last, and for the last half of the fiscal year averaged per month nearly 65 per cent more than the monthly average for the first half. This increase with advancing prices has continued to the present time. The uniform success met with in the sale and operation of our gas engines, steam turbines, hydraulic turbines and electrical apparatus continues, and with an efficient and harmonious organization and the restoration of normal business conditions now in evidenec throughout the country, there is reason to expect an increasingly heavy volume of orders of a steady and profitable character."

NEW COMPANY TAKES HOLD.

The United States Rail Co. has assumed charge of the property and equipment of the Maryland Rail Co., Cumberland, Md., a rerolling concern which has passed out of the hands of the receivers. The board of directors of the United States company includes George M. Schriver, J. D. McCubbin Jr., J. P. Kelly, Henry Schriver, Howard H. Dickey, Harry E. Weber and Thomas F. Shannon. The board organized by electing Henry Schriver chairman; Mr. Dickey, president; Mr. Weber, first vice president; W. Milnor Roberts Jr., second vice president, and Mr. Shannon, secretary-treasurer. Preparations are being made to start the mill shortly.

PROGRESS TOWARD MERGING.

Toronto, Can., Oct. 18.—The merger of the Dominion Iron & Steel Co. and Dominion Coal Co. and possibly other interests, which has been foreshadowed for some time, appears to be making headway. A strong indication of the trend matters are taking is the continued upward tendency in the stock of both companies. Important financial interests are favoring the project and a meeting of the financiers' concerned including E. R. Wood and W. D. Matthews, of Toronto, will be held in Montreal Tuesday.

The American Sheet & Tin Plate Co. has offered $5,000 reward for information leading to the arrest and conviction of the persons who dynamited the home of Supt. Gibson, of its Struthers, O., plant. The commissioners of Mahoning county have offered an additional reward of $1,000.

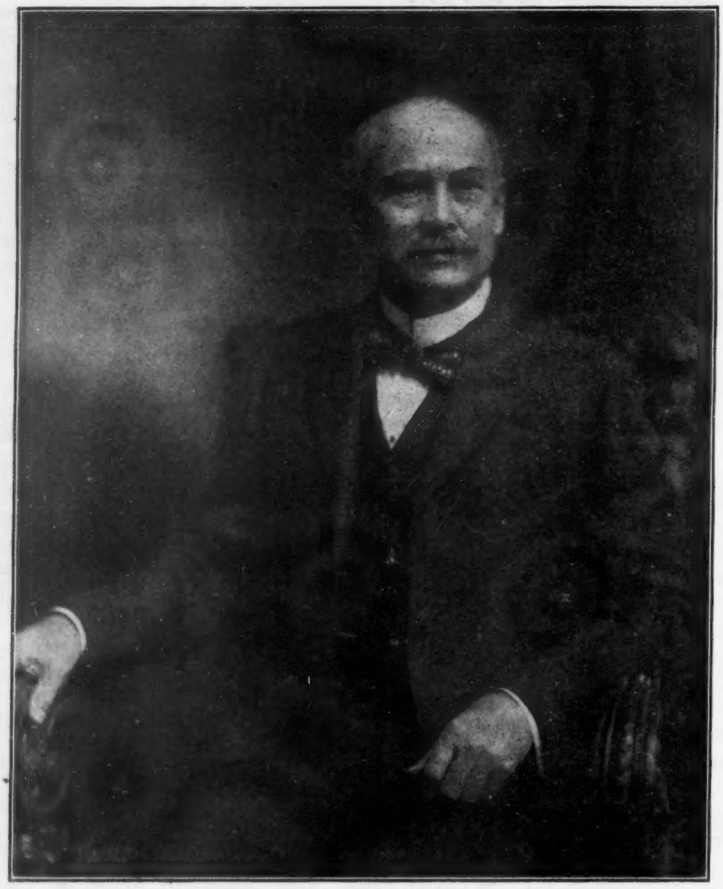
The American Rolling Mill Co., with plants at Middletown, O., and Zanesville, O., has sold to a syndicate headed by W. E. Dutton & Co., of Cincinnati, 15,000 shares of common stock at $200 a share. The new stock will be issued about Jan. 1.

MANUFACTURERS' TRIBUTE TO JUDGE GARY

Dinner Tendered the Leader of the Movement for More Reasonable Competition in the Iron World — Gold Vase Presented—Speeches by the Guest of Honor and Others.

"Moderate, Resolute, Whole in Himself, a Common Good."

This little quotation, borrowed from Tennyson, served as the text upon which a hundred busy iron and steel makers, gathered at the Waldorf-Astoria last Friday evening, based their addresses of gratitude and appreciation to Judge Elbert H. Gary, chairman of the United States Steel Corporation, for his important work in behalf of the industry during the trying periods of the past.



JUDGE ELBERT H. GARY.

The gathering was, in many ways, the most remarkable in the history of iron making. It was not a business gathering—that was particularly barred by the toastmaster before the speaking began; rather it was a convention, from the entire iron and steel producing district of the United States and Canada, to do honor to one man—a competitor to practically all, but a competitor who had taught them the way of competition without bitter warfare and personal animosities, a competition that has room for friendship, for mutual counsel and for safeguarding the common interests of a great industry.

The occasion was taken advantage of to present to Judge Gary, on behalf of his associates in the trade, a magnificent gold vase and a vellum booklet inscribed with a message of well wishing and signed by those subscribing to the dinner. The important feature of the evening was Mr. Gary's address in reply. This, coupled with the brief remarks of J. P. Morgan, made the dinner a notable one. It was held in the Astor galleries, the table being arranged in a great horseshoe and decorated with smilax, yellow orchids and chrysanthemums.

The guests were welcomed by the chairman of the committee on arrangements, E. A. S. Clarke, president of the Lackawanna Steel Co.

Letter from Mr. Gayley.

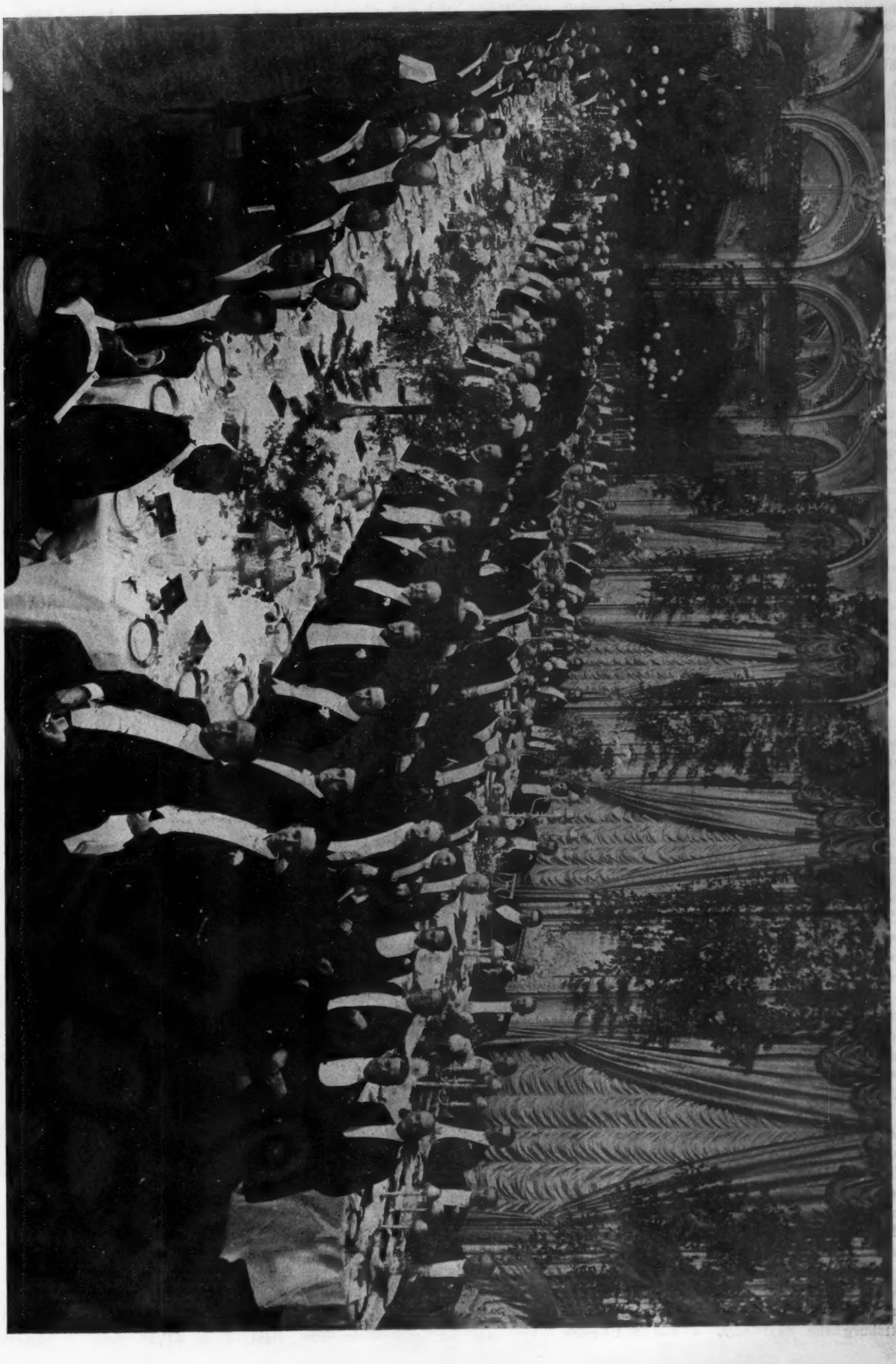
Charles M. Schwab, president of the Bethlehem Steel Corporation, proved a most happy selection as toastmaster. He began by reading an extract from a letter received from James Gayley, formerly first vice president of the Steel Corporation, which was typical of many communications received from those unable to be present. Mr. Gayley wrote:

I would be glad to join with you in this greeting to Judge Gary, who has so splendidly served the iron and steel interests of this country in bringing them into friendly intercourse at a time when it was of the highest importance that they should stand together on a wiser and more sensible basis than ever existed before. In a broader sense this concentration of interests has created a new era and set an example in manufacturing that is likely to be far-reaching and to my mind at least has contributed greatly in making an early return to the very prosperous conditions of the iron business.

Before introducing the speakers, Mr. Schwab asked that all thoughts of business be laid aside and that all present should understand the real nature of the dinner to be an occasion simply of congratulation to Judge Gary in recognition of his important services to the industry. He then introduced Joseph G. Butler Jr., of Youngstown, president of the Bessemer Association.

Mr. Butler's Response.

Mr. Butler's speech was a happy combination of quaint humor, interesting stories and historic facts. He said that the toastmaster had been kind enough to suggest that he might say something original. However that might be, he felt sure that he was likely to say something personal. "My first experience with raw material was with myself," said Mr. Butler. "My mother had one of the old-fashioned families that would have made President Roosevelt weep with joy. There was a round dozen of us. Father was not well off and was unable to give us all an education. I had to choose between going to school and going to work. I chose



BANQUET TENDERED JUDGE ELBERT H. GARY, AT THE WALDORF-ASTORIA, FRIDAY EVENING, OCT. 15, 1909.

the latter and my experience in the iron business dates from my sixteenth year. At that time I was the shipping clerk in the old Ward mill at Niles, the town, as you all know, where the great McKinley was born. McKinley's father at that time was superintendent of the little cold blast charcoal furnace which made three to four tons per day, the product being put entirely at that time in castings. This little furnace was a favorite playground of the boys, and was fascinating to me even at that early date."

Continuing his reminiscences, Mr. Butler said: "I recall an incident when I was a boy not over 12 years of age. My home was near the Ward family and I remember one night, a fine looking gentleman, unusually well dressed for those days, and with long flowing hair, came to Niles to see Mr. Ward in regard to the new process for making steel. He was very enthusiastic and remained two days. The hotel in the town was poor and the gentleman was taken into Mr. Ward's family. I remember that I thought he was crazy and I believe Mr. Ward thought so too. However, he was on the right track, for it was no less a personage than William Kelly, who, I believe, was the first person to suggest making steel by the pneumatic process. Mr. Ward turned the proposition down, and I suppose that if the truth were known, Mr. Kelly visited every iron works in the country, and with the same result.

"It is rather singular that all the great steel inventions or discoveries were made in England and Germany, but were developed in this country. The old world has the originality; American the adaptability."

Mr. Butler then traced the development of the manufacture of steel from very primitive processes up to the present time, giving special attention to the Bessemer process, the open-hearth process, and recent electric processes. Mr. Butler said that the first real progress in the way of increasing the output of blast furnaces was made when the Struthers furnace, of Struthers, O., was built. It was the first furnace to blow by revolutions instead of pressure, and Thomas W. Kennedy, father of Julian Kennedy, introduced this revolutionary method.

GOLD VASE PRESENTED TO JUDGE GARY.

Mr. Butler related an incident which occurred after Mr. Schwab was made president of the Carnegie Steel Co., as follows: "I received a telegram from Mr. Schwab asking me to come to Pittsburg the next day. I did not wait until the next day, but went the same evening, and was on hand when the doors opened in the morning. Mr. Schwab was there, too, bright and early. The young fellow in knickerbockers presented a printed schedule for me to write out my pedigree, which I proceeded *not* to do, and told him I wanted to see Mr. Schwab. Mr. Schwab greeted me very kindly and got down to business at once. He said he wanted to buy some Bessemer pig. I asked him how much. He said 300,000 tons. I told him that the Association could furnish it. He then asked me the price. I named a price for certain deliveries and he said he would take it. I said, 'All right, I will send you the contracts.' I started to go and just as I got to the door, he called me back and said, 'Mr. Butler, I guess we will make that 400,000 tons.' I said, 'All right, it is 400,000 tons.' I happened

to look at my watch when I went into the room and, just for curiosity, looked at it again when I went out, and the whole interview occupied just five minutes. We have made a great many sales to the Carnegie Steel people since, but this, I believe, is the largest single sale."

Mr. Butler recalled having attended a board meeting years ago, at which the question under dispute was, whether pig iron should be sold to Mr. Carnegie on four months' time. Some of the members of the board thought there was doubt about getting the money. However, the risk was taken.

In conclusion, Mr. Butler told of some interesting experiences in Washington last spring and summer during the consideration of the tariff bill.

Canada Represented.

James H. Hoyt, of Cleveland, who was to have been one of the speakers, was prevented by illness from attending. T. J. Drummond, recently elected president of the Lake Superior Corporation and representing the Canadian branch of the industry, spoke at some length on features of the industry particularly concerning the iron manufacturer across the border.

Mr. Drummond was followed by Charles Kirchhoff, vice president of the David Williams Co., to whom was assigned the subject "Gas" and on whom fell the task of providing the humorous address of the evening.

Willis L. King, vice president of the Jones & Laughlin Steel Co., Pittsburg, speaking on "The Old Order Giveth Place to the New," concluded the list of toasts.

Address of Judge Gary.

Judge Gary was enthusiastically greeted. He said:

This reception is a wonderful demonstration of personal friendly regard. In some respects it is without precedent. When it is remembered there are included in those present representatives of the producers of iron and steel aggregating annually 21,500,000 tons of the former and 22,000,000 of the latter, the significance of the occasion is realized. It is no exaggeration to say that ability, skill, talent and success, as applied to the industry mentioned, are represented in this assembly to as great an extent as ever before seen at a similar gathering. The honor which you have conferred upon me should satisfy the desire and excite the pride of any man, however ambitious. For many years, and particularly during the last two years, you have, without exception, and without interruption, shown in every possible way a true and an abiding friendship. Notwithstanding my faults, my mistakes, my lack of understanding, you have proved patient, generous, loyal friends. I fear at times I have seemed stupid and unable to comprehend, or at least seemed to be indifferent to, your exhibitions of confidence; I have the deepest regret for my faults. My intentions have been to reciprocate your kindness. I am glad because of your acquaintance and friendship. My gratitude for this mark of respect is unbounded. The memory of this occasion will abide in my thoughts as one of the most delightful experiences of life. You have placed me under obligations which can never be canceled. Indeed, I do not wish to cancel them. My difficulty will be in living up to a standard which will fully justify a continuance of the respect and confidence which you now entertain.

And now, having expressed recognition of your generous and undeserved bestowal of honor, not unmingled with affection and my sensibility of personal obligation, I cheerfully acknowledge that in bringing together such a splendid representation of talent as a tribute to an individual the controlling motive is to make prominent and give emphasis to a sentiment which has been constantly in our minds during the last two years and is associated with a movement with which, by your indulgence, I have been more or less identified. It is the sentiment that actual friendship may

OCTOBER 15th
1909
JUDGE E. H. GARY
DEAR SIR
We, who have had the
GARY
1908
Seal of the City of Gary
honor of having you and some of
your friends as our guests this evening
wish to add a few words to those al-
ready spoken for us in appreciation
of the fairness and of the friendly
and helpful attitude you have
shown toward us during the two
trying years just past

Pages From Booklet Presented to Judge Gary.

continually be applied to competitive business.

The Old Rule.

In the days gone by, never to return it is to be hoped, it was a common practice for competitors in business to act in accordance with the rule that "might makes right," and that permanent success was to be reached and enjoyed only by those having the greatest strength and power or the longest purse. As a result it frequently happened that the weaker or poorer were crushed and destroyed. A competitor was treated as a common enemy. Methods for his defeat and overthrow were used regardless of good morals or good policy. Possibly in some instances it redounded to the pecuniary advantage of a few, though even that is doubtful. Certainly it was not permanently beneficial to the general public, and, from the standpoint of good morals, was a shame and a disgrace. Although the conditions stated may never have existed in the iron and steel business, nor the methods invoked by the managers of our line of industry, still it is safe to say there are those in this room who know by sad experience that the means employed by those in charge within the last 20 years were calculated to enforce the law of the survival of the fittest. Even within my knowledge of the business, which is brief in point of time as compared with that of others who are here this evening, it has seemed to me that business was being done by several, at least of the manufacturers of iron and steel without regard to the rights and interest of all others. I do not, of course, assert that there was any breach of the law, or that force or violence was resorted to, but I mean that there were in some cases lack of confidence, a withholding of information, a piracy of business, and indiscriminate and reckless cutting of prices, a promise to recognize the rights of others made with no intention of fulfilling the promise, an overbearing, unfair, destructive competition which drove many out of business, kept many others on the ragged edge of existence, and brought demoralization to the industry and more or less unfavorably influenced business and financial conditions generally.

If it is claimed this is an overstatement of facts it is only necessary to carry the mind back to the time when pig iron sold for $8.50 a ton, billets for $12.50 a ton, and rails for $16 a ton; when the wages of common labor were two-thirds of the present prices or less, and strikes among the men were of frequent occurrence; when mills and furnaces were idle or dismantled, and when the banker dreaded to see the steel and iron manufacturer enter the door of the bank.

In passing it is proper to say that in the long run an unreasonable destructive competition such as I have referred to is prejudicial to the best interests of all concerned, including the manufacturer, his workmen, his customers and the general public. The reasons should be obvious, and will not be dwelt upon at this time.

Change for the Better.

During the last 10 years methods and conditions have been changed for the better. Between the gentlemen who are in control of the iron and steel industry in America at the present time there exists a most intimate relation. In your intercourse and communications you are open, frank and unreserved. In your treatment of each other you intend to be just and fair. You can witness the success and prosperity of your neighbors without the slightest feeling of envy or discomfort. You believe in competition, but not hostility; in rivalry, but not antagonism; in progress and success for all, but not in the punishment or destruction of any.

We do not advocate combinations or agreements in restraint of trade nor action of any kind which is opposed to the laws or to the public welfare. We do not expect the survival in business of any one who by reason of incompetence, dishonesty or fault is unable to cope with his competitors in an open market and a fair field. The public interest is opposed to any arrangement which will secure the pecuniary success of any individual not able to reach it in competition with others. What we advocate is fairness and friendship in business, cordial intercourse, confidence in each other, frankness in disclosure when information is properly requested. If it is claimed the suggestions referred to are not practical, the answer is they have been carefully considered by the gentlemen who attended this reception and dinner and have been adopted. With you they are no longer theories. In many ways and on many occasions you have personally and individually given evidence of this fact. By your decision and your action you have reached and now occupy a high place in the estimation of the entire industrial world. The magnitude of business in your charge gives you a large influence in regard to the commercial and financial condition of the country. Only two years ago this country witnessed a sudden and severe financial cyclone. Doubt and distrust were in the minds of thousands. Not only were depositors of funds in the banks alarmed, but even banks themselves were more or less suspicious of one another.

A Financial Giant.

The disposition of managers of individual banks seemed to be to retain the funds in their possesion and to recover what they had on deposit in other banks. Money was scarce, credit reduced, values depreciated and business stagnated. The present was dark and the future gloomy. Never before in the memory of many who are present this evening was the financial outlook so desperately bad. Under those circumstances and on that occasion there stood up in our midst a financial giant who turned his face toward the storm, and with a keen perception which pierced the clouds and saw on the other side the sun of prosperity, and with a confidence in this country and her people and a comprehension of the basic conditions and recuperative power of the country, then decided to invite his friends to join him in providing financial assistance to the weak or afflicted banks, and to give aid and encouragement and words of hope and cheer to the communities at large. The result you know. The response was prompt and hearty. The necessary aid was quickly given. And when the public knew that this band of financiers, under the leadership of this great man, was in session almost literally day and night, having under most careful consideration every question which might affect the financial destiny of the country, confidence began to be restored and business slowly but surely began to return to its normal condition. I venture to suggest what you all know, that the disposition and conduct of Mr. Morgan during the trying circumstances I have mentioned were the result of his feeling of friendship for his acquaintances, his neighbors, his countrymen and humanity in general. Those who are best acquainted with him know that however big he may be mentally he is greater when estimated by the promptings of his heart.

Disaster Averted.

And now, in your behalf, I dare insist you are entitled to much credit for your temper, your attitude and your conduct at the time the panic of 1907 occurred and during the dark days which followed. You knew by long experience what was liable to happen in your lines of activity. You knew full well what would probably result to your business, to your customers, to your employes and to financial conditions generally if you should adopt the measures which had been pursued under the old regime. You realized that many of your customers who were carrying large stocks, purchased at prices which prevailed when existing conditions were buoyant and prospects hopeful, and who were more or less in debt at the banks, would be forced into liquidation and bankruptcy if prices should become demoralized; that immediately there would be the closing down of mills, the idleness of men, the usual labor strikes and poverty and misery. You knew that the bitter and destructive competition which must follow would force many of the manufacturers themselves into insolvency. And more than this, you could see that, as your industry had become more or less a barometer of trade, if you fail to keep your industrial ship afloat and in good repair other lines would be affected and damage would result which could not be remedied for years to come.

And so by invitation you came together in the most friendly spirit, high minded, honest, frank and fair toward each other, and with a kind feeling for all who might be concerned in your action. You literally placed upon one table all evidences relating to your affairs, your methods, your interests, your conduct and your intentions. With no agreement or request on the part of any one for an agreement as to what you would do in the future, you were perfectly willing to

state on all occasions and under all circumstances what you were doing. You placed every one interested in possession of all the facts necessary for his protection. Never before in the history of the country did such a large body of men with responsibilities so great ever come together and treat one another on a basis so generous, fair and high-toned.

Your attitude and conduct at that time, no doubt, had much to do in allaying the fever of excitement which existed, in maintaining the stability of business conditions and in securing a return of prosperity. This is evidenced by the statement of many of the leading bankers and financiers of this country. You have heard words of praise from many directions; and especially have many of your customers been grateful to you for the manner in which you protected them.

J. G. Butler, Jr.
President, Bessemer Pig Iron Association
President, Youngstown Sheet & Tube Company
President, Lackawanna Steel Company
President, Pennsylvania Steel Company
Vice President, Jones & Laughlin Steel Company
President, Bethlehem Steel Company
President, Cambria Steel Company
Chairman, Republic Iron & Steel Company
President, Tod, Stambaugh Company
General Manager, Otis Steel Company
Chairman, Crucible Steel Company
President, Warwick Iron & Steel Company

PAGE FROM BOOKLET PRESENTED TO JUDGE GARY, SHOWING SOME OF THE SIGNATURES.

Good for All.

In the application of a feeling of friendship and fairness we must not be selfish nor limit the application to ourselves or the business in our charge. If it is a good doctrine for us, it is equally as good for others who are more or less affected by what we do. We should have it in mind in dealing with our employes, with our customers and with the public. We must never forget that our rights and interests are and should be subservient to the public welfare; that the rights and interests of the individual must always give way to those of the public.

And in the consideration of these questions as applied to competitors in trade we should not confine ourselves to the business men of this country. We have been very fortunate in our relations with our foreign brethren. They have been friendly, considerate and fair. It is our desire to continue the most amicable relations with foreigners, for this will result in great benefit and profit to all. There are many foreign neutral countries whose people are purchasers of our commodities which can be reached by all of the manufacturers, but in cost of transportation much greater to some than to others. Even without any agreement on the subject, if we are in close, constant and friendly contact with our competitors abroad, it is natural to distribute our products at the least expense and with the greatest benefit to all. The manufacturers of our products throughout the world are more or less dependent upon each other. As a rule, prosperity for one means prosperity for all, and adversity for one means adversity for all. The foreigners have in many ways and on many occasions exhibited a disposition to foster relations with ourselves which are calculated to add materially to our progress and success. We should be willing and anxious to reciprocate in every possible way. It is well known that the heads of the governments across the seas are quite inclined to encourage and favor the manufacturers within their domains, and to encourage them in their efforts to continue pleasant relations with their competitors in other countries. This is especially true of King Edward, Emperor William and Emperor Joseph, and perhaps other great rulers. The success and prosperity of the foreign manufacturers are due largely to the intelligent, cordial and generous encouragement and approval of their monarchs, who believe that the material growth and prosperity of the citizen is one of the essentials to progress and stability. To our great advantage, we have learned much from the foreign manufacturers of iron and steel. Bitter, destructive war between nations or individuals is never justified except in defense of life or liberty or property, and then as a last resort. Nor is bitter, wrathful and destructive competition in business permissible unless it becomes necessary in self-defense. There are two reasons for this conclusion—first, because it is right, and that is sufficient, and, secondly, because it is good policy, and therefore profitable.

And so I conclude by saying the controlling thought in the minds of those who are responsible for this reception and dinner will continue and grow in estimation to the great benefit of the people of this country. You have taken an advance position and will not recede. Your influence for good will be appreciated. You are leaders in the industrial branches of human effort in this country. Where you lead others will follow. You occupy a high moral plane. Your voice in commercial and political circles will be potential. You have great responsibilities, but you will measure up to them. Your heads and your hearts are right. You will deserve and will secure the approval of all mankind.

A Tribute by Mr. Morgan.

One of the happiest features of the evening was the brief speech of J. P. Morgan, paying a handsome tribute to Judge Gary and responding to the latter's words of praise in his behalf. The occasions upon which Mr. Morgan speaks are extremely rare, hence unusual interest centered in his remarks, which were as follows:

Gentlemen, I wish it were in my power to say all that I would like to say on this occasion. What I might say at another time would be pretty poor, but to-night I am very much overcome by all that I have heard said,

for Judge Gary and I have been working together now for 10 years in a way perhaps none of you appreciate how much it means to me. I feel as though we were all just together. It is impossible for me to say more, and I must ask you to accept my appreciation of how deeply I feel for the kind evidence of your sentiments towards me tonight.

The Cup and the Book.

The vase with which Judge Gary was presented stands about 18 inches high, is of a simple classical design and is of 18 karat gold. It was designed by Tiffany & Co. at the suggestion of Mr. Clarke and other members of the arrangement committee, who in this and other matters connected with the dinner arrangements had the co-operation of John W. Alexander, the noted artist, who was one of the guests of the evening. The vase sets in a case covered and lined with soft brown leather, identical with that forming the menu covers. Inscribed on one of the panels of the vase is the following:

ELBERT H. GARY
from
His many friends
among the
Iron and Steel Manufacturers
In
America.
October the fifteenth
Nineteen Hundred
and
Nine.

In addition Judge Gary was presented with a testimonial booklet, the illuminated pages of which bore the tribute of Mr. Clarke, spoken in welcoming the guests. This booklet, also by Tiffany & Co., is done on vellum with a binding of a red Spanish leather of great permanence. The pages illustrated herewith give an imperfect idea of the beauty of the illuminated work which characterizes the little volume; the text of which is as follows:

"We, who have had the honor of having you and some of your friends as our guests this evening, wish to add a few words to those already spoken for us in appreciation of the fairness, and of the friendly and helpful attitude you have shown toward us during the two trying years just passed.

"It is no small compensation for the anxieties and trials of that period to feel that, perhaps largely owing to them, we have a closer, better acquaintance with yourself and each other, and to know that through your efforts the iron and steel manufacturers of this country stand on a higher, broader and fairer basis of business relationship.

"There are a few to whom it is given to accomplish such work; and none of whom the lines on the title page of this volume, written by Lord Tennyson of the great Duke of Wellington, can be more appropriately spoken, than of yourself.

"May there always be someone with your wisdom and fairmindedness to counsel us."

This is followed by the autographs of the subscribers to the dinner and by a list of the invited guests. These were as follows:

Subscribers.

J. M. Barr, president Woodstock Iron & Steel Co., Anniston, Ala.
Edward Bailey, president Central Iron & Steel Co., Harrisburg, Pa.
George Bartol, general manager Otis Steel Co., Cleveland.
Morris Bachman, president Sharon Steel Hoop Co., Sharon, Pa.
J. G. Battelle, president Columbus Iron & Steel Co., Columbus, O.
Frank O. Billings, Tod, Stambaugh & Co., Cleveland.
W. L. Brown, president Pickands, Brown & Co., Chicago.
James A. Burden, president Burden Iron Co., Troy, N. Y.
J. G. Butler, Jr., president Bessemer Ore Association, Youngstown, Ohio.
J. A. Campbell, president Youngstown Sheet & Tube Co., Youngstown, Ohio.
E. A. S. Clarke, president Lackawanna Steel Co., New York City.
E. S. Cook, president Warwick Iron & Steel Co., Pottstown Pa.
T. I. Crane, president Northern Iron Co., Philadelphia, Pa.
T. J. Drummond, president Lake Superior Corporation, Montreal, Can.
H. DuPuy, chairman Crucible Steel Co. of America, Pittsburg.
B. F. Fackenthal, Jr., president Thomas Iron Co., Easton, Pa.
E. C. Felton, president Pennsylvania Steel Co., Philadelphia.
Austin Heckscher, president R. Heckscher & Sons Co., Philadelphia.
Joseph H. Hoadley. president Alabama Consolidated Coal & Iron Co., New York.
C. R. Hubbard, president Wheeling Steel & Iron Co., Wheeling, W. Va.
A. F. Huston, president Lukens Iron & Steel Co., Coatesville, Pa.
O. N. Hutchinson, president Grand Crossing Tack Co., Grand Crossing, Ill.
Willis L. King, vice president Jones & Laughlin Steel Co., Pittsburg,
I. A. Kelley, president Ashland Steel Co., Ashland, Ky.
James Lord, president American Iron & Steel Mfg. Co., Lebanon, Pa.
O. P. Letchworth, president Pratt & Letchworth Co., Buffalo.
Cyrus H. McCormick, president International Harvester Co., Chicago.
Price McKinney, Corrigan, McKinney & Co., Cleveland.
J. C. Maben, president Sloss-Sheffield Steel & Iron Co., Birmingham.
Samuel Mather, Pickands, Mather & Co., Cleveland.
Wm. G. Mather, president Cleveland-Cliffs Iron Co., Cleveland.
Benjamin Nicoll, B. Nicoll & Co., New York.
Thos. K. Niedringhaus, president National Enameling & Stamping Co., St. Louis.
E. W. Oglebay, Oglebay, Norton & Co., Cleveland.
Leonard Peckitt, president Empire Iron & Steel Co., Catasauqua, Pa.
J. H. Plummer, president Dominion Iron & Steel Co., Sydney, N. S.
Veryl Preston, president Eastern Steel Co., New York.
David Reeves, president Phoenix Iron Co., Philadelphia.
F. B. Richards, M. A. Hanna & Co., Cleveland.
Chas. G. Roebling, president John A. Roebling's Sons Co., Trenton, N. J.
W. A. Rogers, president Buffalo & Susquehanna Iron Co., Buffalo.
Chas. M. Schwab, president Bethlehem Steel Corporation, So. Bethlehem, Pa.
I. M. Scott, president LaBelle Iron Works, Steubenville, O.
C. B. Shoemaker, president Glasgow Iron Co., Pottstown, Pa.
F. C. Smink, president Reading Iron Co., Reading, Pa.
W. P. Snyder, president Shenango Furnace Co., Pittsburg.
Powell Stackhouse, president Cambria Steel Co., Philadelphia.
Alexis W. Thompson, president Inland Steel Co., Chicago.
John A. Topping, chairman Republic Iron & Steel Co., New York.
J. F. Welborn, president Colorado Fuel & Iron Co., Denver.
Frank S. Witherbee, president Witherbee, Sherman & Co., Inc., New York.
Howard Wood, president Alan Wood Iron & Steel Co., Philadelphia.
W. P. Worth, treasurer Worth Bros. Co., Coatesville, Pa.
Wallace H. Rowe, president Pittsburg Steel Co., Pittsburg.

Committee on Arrangements.

The committee on arrangements consisted of the following. Chairman, E. A. S. Clarke, president of the Lackawanna Steel Co.; J. A. Campbell, president of the Youngstown Sheet & Tube Co.; E. C. Felton, president of the Pennsylvania Steel Co.; Willis L. King, vice president of the Jones & Laughlin Steel Co.; Joseph G. Butler, Jr., president of the Bessemer Association; Powell Stackhouse, president of the Cambria Steel Co.; Charles M. Schwab, president of the Bethlehem Steel Corporation; and John A. Topping, chairman of the Republic Iron & Steel Co. Naturally the bulk of the work of preparation for the event fell upon the chairman, and Mr. Clarke was in receipt of numerous compliments over his success in this connection. The assistance of the other members, however, and of Mr. Alexander was most important.

List of Those Invited.

J. W. Alexander, president National Academy of Design, New York.

J. M. Barr, president Woodstock Iron & Steel Co., Anniston, Ala.
Edward Bailey, president Central Iron & Steel Co., Harrisburg.
A. F. Banks, president E. J. & E. Ry. Co., Joliet, Ill.
George Bartol, general manager Otis Steel Co., Cleveland.
Morris Bachman, president Sharon Steel Hoop Co., Sharon, Pa.
J. G. Battelle, president Columbus Iron & Steel Co., Columbus, O.
Frank J. Billings, Tod, Stambaugh & Co., Cleveland.
George C. Boldt, The Waldorf-Astoria, New York.
W. C. Brown, president N. Y. C. & H. R. R. R., New York.
W. L. Brown, Pickands, Brown & Co., Chicago.
Jas. A. Burden, Jr., president Burden Iron Co., Troy, N. Y.
D. H. Burnham, president D. H. Burnham & Co., Chicago.
J. G. Butler, Jr., president Bessemer Ore Association, Youngstown.
E. J. Buffington, president Illinois Steel Co., Chicago.
T. J. Bray, vice president Republic Iron & Steel Co., Pittsburg.
Hon. Robert Bacon, New York.
J. A. Campbell, president Youngstown Sheet & Tube Co., Youngstown.
Capt. H. S. Chamberlain, president Roane Iron Co., Chattanooga, Tenn.
Eugene B. Clark, vice president American Sintering Co., Chicago.
E. A. S. Clarke, president Lackawanna Steel Co., New York.
E. S. Cook, president Warwick Iron & Steel Co., Pottstown, Pa.
T. I. Crane, Northern Iron Co., Philadelphia.
Daniel Coolidge, president Lorain Steel Co., Lorain, O.
W. E. Corey, president U. S. Steel Corporation, New York.
H. Coulby, president Pittsburg S. S. Co., Cleveland, O.
Geo. G. Crawford, president Tenn. Coal, Iron & R. R. Co., Birmingham.
Edward Bailey Cook, manager Warwick Iron & Steel Co., Pottstown, Pa.
T. J. Drummond, president Lake Superior Corporation, Montreal.
H. DuPuy, chairman Crucible Steel Co., Pittsburg.
W. B. Dickson, first vice president U. S. Steel Corporation, New York.
A. C. Dinkey, president Carnegie Steel Co., Pittsburg.
H. G. Dalton, Pickands, Mather & Co., Cleveland.
James Deering, vice president International Harvester Co., Chicago.
Chas. Deering, chairman International Harvester Co., Chicago.
James Dempsey, attorney, Squire, Sanders & Dempsey, Cleveland.
R. H. Edmonds, editor *Manufacturers' Record*, Baltimore.
Thos. A. Edison, Orange, N. J.
B. F. Fackenthal Jr., president Thomas Iron Co., Easton, Pa.
E. C. Felton, president Pennsylvania Steel Co., Philadelphia.
J. A. Farrell, president U. S. Steel Products Export Co., New York.
W. J. Filbert, comptroller U. S. Steel Corporation, New York.
W. W. Finley, president Southern Ry., Washington, D. C.
Edward C. Freeman, Cornwall, Pa.
John Fritz, S. Bethlehem, Pa.
E. H. Gary, chairman U. S. Steel Corporation, New York.
T. W. Guthrie, president Republic Iron & Steel Co., Pittsburg.
E. W. Grace, general superintendent Bethlehem Steel Co., South Bethlehem, Pa.
James Gayley, New York.
August Heckscher, vice president The Eastern Steel Co., New York.
Austin Heckscher, R. Heckscher & Sons Co., Philadelphia.
Hon. M. T. Herrick, Cleveland.
Joseph Hoadley, president Ala. Consolidated Coal & Iron Co., New York.
C. R. Hubbard, president Wheeling Steel & Iron Co., Wheeling, W. Va.
A. F. Huston, president Lukens Iron & Steel Co., Coatesville, Pa.
O. W. Hutchinson, president Grand Crossing Tack Co., Grand Crossing, Ill.
H. L. Haldeman, vice president Pulaski Iron Co., Philadelphia.
Edward M. Hager, president Universal Portland Cement Co., Chicago.
J. A. Hatfield, president American Bridge Co. of New York, New York.
D. R. Hanna, M. A. Hanna & Co., Cleveland.
Leonard C. Hanna, Cleveland.
James H. Hoyt, Hoyt, Dustin & Kelley, Cleveland.
Archibald Johnson, first vice president Bethlehem Steel Co., South Bethlehem, Pa.
B. F. Jones Jr., president Jones & Laughlin Steel Co., Pittsburg.
Jonathan R. Jones, secretary and treasurer Alan Wood Iron & Steel Co., Conshohocken, Pa.
W. L. Jones, general manager Jones & Laughlin Steel Co., Pittsburg.
Willis L. King, vice president Jones & Laughlin Steel Co., Pittsburg.
Charles Kirchhoff, editor *The Iron Age*, New York.
I. A. Kelley, president Ashland Steel Co., Ashland, Ky.
D. G. Kerr, second vice president U. S. Steel Corporation, New York.
Wm. V. Kelley, president American Steel Foundries, Chicago.
Kemper K. Knapp, Waldorf-Astoria, New York.
Hon. Jno. G. A. Leishman, Valley Forge, Pa.
James Lord, president American Iron & Steel Mfg. Co., Lebanon, Pa.
L. F. Loree, president Delaware & Hudson Co., New York.
Thomas Lynch, president H. C. Frick Coke Co., Pittsburg.
O. P. Letchworth, president Pratt & Letchworth Co., Buffalo.
Hon. Franklin D. Locke, Rogers, Locke & Babcock, Buffalo.
James McCrea, president Penna. R. R. Co., Philadelphia.
G. G. McMurtry, chairman American Sheet & Tin Plate Co., New York.
Chas. MacVeagh, U. S. Steel Corporation, New York.
C. H. McCullough Jr., vice president Lackawanna Steel Co., Buffalo.
Cyrus H. McCormick, president International Harvester Co., Chicago.
Price McKinney, president Corrigan, McKinney & Co., Cleveland.
J. C. Maben, president Sloss-Sheffield Steel & Iron Co., Birmingham, Ala.
Robt. Mather, chairman Westinghouse Elec. & Mfg. Co., New York.
Samuel Mather, president Pickands, Mather & Co., Cleveland.
W. G. Mather, president Cleveland-Cliffs Iron Co., Cleveland.
J. P. Morgan, J. P. Morgan & Co., New York.
Frank A. Munsey, Munsey Pub. Co., New York.
Benj. Nicoll, president B. Nicoll & Co., New York.
Thos. K. Niedringhaus, president National Enameling & Stamping Co., St. Louis.
E. W. Oglebay, Oglebay, Norton & Co., Cleveland.
W. J. Olcott, president Oliver Iron Mining Co., Duluth, Minn.
Leonard Peckitt, president Empire Steel & Iron Co., Catasauqua, Pa.
John A. Penton, managing editor THE IRON TRADE REVIEW, Cleveland
J. H. Plummer, president Dominion Iron & Steel Co., Sydney, N. S.
Veryl Preston, president Eastern Steel Co., New York.
W. P. Palmer, president American Steel & Wire Co., Cleveland.
E. W. Pargny, president American Sheet & Tin Plate Co., Pittsburg.
Chas. S. Price, vice president Cambria Steel Co., Philadelphia.
David Reeves, vice president Phoenix Iron Co., Philadelphia.
Jas H. Reed, vice president Bessemer & Lake Erie R. R., Pittsburg.
John Reis, assistant to president U. S. Steel Corporation, New York.
Chas. A. Rathbone, Buhl Malleable Co., Detroit.
J. V. W. Reynders, vice president Pennsylvania Steel Co., Steelton, Pa.
F. B. Richards, M. A. Hanna & Co., Cleveland.
C. S. Robinson, vice president Youngstown Sheet & Tube Co., Youngstown.
James P. Roe, general superintendent, Glasgow Iron Co., Philadelphia.
Chas. G. Roebling, president John A. Roebling's Sons Co., Trenton, N. J.
Karl G. Roebling, John A. Roebling's Sons Co., Trenton, N. J.
W. A. Rogers, president Buffalo & Susquehanna Iron Co., Buffalo.
Wallace H. Rowe, president Pittsburg Steel Co., Pittsburg.
Oscar Richey, president Kelley Nail & Iron Co., Ironton, O.
Ferd. W. Roebling, treasurer John A. Roebling's Sons Co., Trenton, N. J.
W. B. Schiller, president National Tube Co., Pittsburg.
C. M. Schwab, president Bethlehem Steel Co., New York.
I. M. Scott, president La Belle Iron Works, Steubenville, O.
Severn P. Ker, general manager Sharon Steel Hoop Co., Sharon, Pa.
Edward Shearson, Shearson, Hammill & Co., New York.
C. B. Shoemaker, president Glasgow Iron Co., Pottstown, Pa.
Arthur J. Singer, assistant to president Lackawanna Steel Co., New York.
F. C. Smink, president Reading Iron Co., Reading, Pa.
W. P. Snyder, president Shenango Furnace Co., Pittsburg.
Powell Stackhouse, president Cambria Steel Co., Philadelphia.
Francis Lynde Stetson, New York.
H. H. Stambaugh, president Biwabik Mining Co., Youngstown.
James M. Swank, general manager American Iron and Steel Ass'n, Philadelphia.
Frank Tenney, assistant to president Penna. Steel Co., Philadelphia.
Alexis W. Thompson, president Inland Steel Co., Chicago.
John A. Topping, chairman Republic Iron & Steel Co., New York.
Richard Trimble, secretary and treasurer U. S. Steel Corporation, New York.
Moses Taylor, vice president Lackawanna Steel Co., New York.
F. D. Underwood, president Erie R. R. Co., New York.
J. F. Welborn, president Colorado Fuel & Iron Co., Denver.
W. H. Whiteside, president Allis-Chalmers Co., Chicago.
W. R. Walker, assistant to president U. S. Steel Corporation, New York.
F. W. Wood, president Maryland Steel Co., Sparrows Point, Md.
W. L. Ward, president Russell, Birdsall & Ward Co., Port Chester, N. Y.
Frank S. Witherbee, president Witherbee, Sherman & Co., New York.
Howard Wood, president Alan Wood Iron & Steel Co., Philadelphia.
W. P. Worth, treasurer Worth Bros. Co., Coatesville, Pa.
August Zeissing, president American Bridge Co., Chicago.

Directors of U. S. Steel Corporation:
William Edenborn, Hibernia Bank building, New Orleans.
Henry C. Frick, 111 Broadway, N. Y.
William H. Moore, 115 Broadway, New York.
Norman B. Ream, 24 Broad street, New York.
Jas. H. Reed, Carnegie building, Pittsburg.
Chas. Steele, 23 Wall street, New York.
P. A. B. Widener, Land Title building, Philadelphia.
Robert Winsor, 150 Devonshire street, Boston.
Edmund C. Converse, American Bank Note Co., 70 Broad street, New York.
Alfred Clifford, Security building, St. Louis.
J. Pierpont Morgan, 23 Wall street, New York.
Thomas Morrison, Diamond Bank building, Pittsburg.
Geo. W. Perkins, 23 Wall street, New York.
J. P. Morgan Jr., 23 Wall street, New York.
Geo. F. Baker, 2 Wall street, New York.
John F. Dryden, Prudential building, Newark, N. J.
Clement A. Griscom, Land Title building, Philadelphia.
Marvin Hughitt, 215 Jackson boulevard, Chicago.
Daniel G. Reid, 115 Broadway, New York.
John D. Rockefeller Jr., 26 Broadway, New York.
Nathaniel Thayer, 50 State st., Boston.
Henry Phipps, 787 Fifth avenue, New York.

IRON AND STEEL IMPORTS.

Imports of iron and steel for August, according to the Department of Commerce and Labor figures, amounted to $2,576,969 compared with $1,414,416 in August last year. For the eight months they were $18,174,492 compared with $13,307,611 for the like period last year.

The exports of iron and steel for August, not including ore, were $14,136,215 compared with $12,058,561 for August last year. Total exports for the past eight months aggregated $100,955,684 compared with $105,258,962 last year.

AMONG MACHINERY MAKERS.

MILWAUKEE.

Many Improvements and Extensions in Milwaukee District.

Milwaukee, Wis., Oct. 19.—The South Division Civic association of Milwaukee has computed the value of improvements, additions and extensions that are being made by manufacturing plants in the south side district at $1,000,000. This district includes the city of West Allis, the manufacturing suburb of Milwaukee. Among the important improvements enumerated in the report are:

Kearney & Trecker, $6,000 power house; W. R. Follmer, machine shop, Ferry and Lake streets; Davis Mfg. Co., engines, doubling floor space; The Heil Co., structural iron, addition, 80 x 80 feet; Allis-Chalmers Co., blacksmith shop, 130 x 410 feet; Progressive Metal & Refining Co., foundry, 100 x 160 feet; Fred M. Prescott Steam Pump Co., new machine shop, 50 x 200 feet; International Harvester Co., warehouse, 85 x 350 feet, six stories; Nortmann-Duffke Foundry Co., foundry addition, 86 x 160 feet; Milwaukee Aluminum & Brass Foundry Co., foundry; Nordberg Mfg. Co., addition to Corliss engine department. The Harvester company's present work is only part of an extensive improvement scheme that will involve from $750,000 to $1,000,000.

The Fuller & Johnson Mfg. Co. of Madison has increased its directorate, Walter Ayer of Chicago becoming a vice president. About $75,000 will be spent in improvements. A new office building, costing $15,000, is to be erected at once. The gas engine department will be increased one-fourth, the agricultural machinery department enlarged, and much new equipment purchased.

Slater & Marsden of South Beloit are building a new warehouse, which will permit of full operations. Daily pours were started in the foundry on Oct. 13.

The Belle City Malleable Iron Co. of Racine has broken ground for a new brick and steel shop to cost $75,000. It will be 82 x 350 feet in dimensions and contain offices, shipping room, pattern room, annealing room and machine shop. A 300-horsepower engine and 200 kilowatt generator will be installed, all machinery to be operated by individual motors. The force of 400 men will be increased to between 500 and 600.

All of the big industries at Racine are advertising for additional help. The J. I. Case factories are working full time, 200 men being employed in the foundry. The Mitchell Motor Car Co., Pierce Engine & Motor Co., Lakeside Malleable Iron Co. and Racine-Sattley Co. are giving positions to men of practically no experience.

The Manitowoc Iron & Metal Co. is erecting a large warehouse at Manitowoc. The Gilson Mfg. Co. of Port Washington is erecting a new core oven. The Hadfield-Hall Co., a new Wausau concern, has started active operations in the manufacture of alternating current reducers and electrical supplies.

During September, 21 steam turbines, none of less capacity than 300 kilowatt, were shipped by the Allis-Chalmers Co. from the West Allis works. A 90,000 pound steam hammer, claimed to be the largest in the world, will be installed in the new blacksmith shops.

The Wittenberg (Wis.) Electric Co. is installing an Ames high speed, 140-horsepower engine, its water power being unreliable.

PITTSBURG.

Promptness in Delivery is Becoming Factor in the Market.

Office of THE IRON TRADE REVIEW,
510 Park Building, Oct. 19.

The factor of delivery is making its effect felt more plainly in the machinery market, and this feature of a contract is receiving increased consideration in current transactions. In some cases the question of price has not been the primary one, and equipment makers who are in a position to render quick service have been benefited through the receipt of orders even when their quotations were not the most attractive to the buyer. Some of the large makers of machinery have their shops full of work and their capacities taken up for some time ahead, so that they are not in a position to furnish quick shipment in some lines of equipment.

The current volume of inquiry and new business continues very good, and in the smaller lines the mails are bringing daily a very satisfactory number of orders to manufacturers. Some large projects in mill and steel works construction are pending and the operating plants are furnishing a steady demand in the way of replacements and improvements.

The Union Sheet & Tin Plate Co., Pittsburg, which has acquired and will operate the sheet plant of the Hazleton Sheet Steel Co., Hazleton, Pa., and the sheet steel and tin plate plant at Marietta, O., is planning some improvements at the two works. It is the intention to add one and probably two sheet mills at Marietta and an additional sheet mill at Hazleton. W. O. Park, Farmers Bank building, Pittsburg, is president.

The Stauft Coke Machinery Co., with a capital of $10,000. has been incorporated to handle the coke drawing and leveling machine which is the invention of D. B. Stauft of Uniontown, Pa. Mr. Stauft, who is connected with the Taylor Coal & Coke Co., Uniontown, Pa., is treasurer of the new company.

The plant of the Refined Iron & Steel Co. located at Shoustown, Pa., on the P. & L. E. railroad just outside of Pittsburg, has been purchased at receiver's sale by the J. P. Koehler Co., Pittsburg, dealer in old material. The plant consists of seven double puddle furnaces, three pile furnaces, four guide mills and a muck mill. The purchaser has not yet decided what disposition will be made of the plant.

The Mesta Machine Co. has received an order from the Tennessee Coal, Iron & Railroad Co. for one 84-inch and one 132-inch Helender barometric condenser for installation at Ensley, Ala. The company has also taken an order from the Salem Iron Co., Leetonia, O., for a blowing engine 84 and 84 x 60 inches. The Mesta company reports a very active condition of trade and much work on hand in its shops, but owing to the large expansion of capacity which has been made during the past two years the company is still able to offer good deliveries on equipment.

The Cyclops Foundry Co., Pittsburg, which was recently incorporated, has increased its capital stock from $5,000 to $100,000. K. K. George, 450 Fourth avenue, Pittsburg, is treasurer of the company.

BUFFALO.

Volume of Business Reported Shows Activity is Increasing.

Office of THE IRON TRADE REVIEW,
932 Ellicott Square, Oct. 19.

The tone of the machinery market is inclined to be spasmodic here and throughout the state but the volume of business reported by certain interests is of a character that places the general conditions on a higher level. The manufacturers of milling machines, shapers, planers, engine lathes, etc., are

among those receiving a larger amount of business. Milling machinery is in strong demand and most orders of this class are taken subject to four or five months delay in delivery. With the improvements, however, that have grown with the elapse of two or three months, the machinery market is still found below normal but it is so far above what it had been two years previously that the whole tone of things, and the prospects in general, lend a decided improvement to the condition of trade.

The manufacturers in this state of cast iron pipe are sharing a quiet period. Very few important specifications are out just now. Municipal operations requiring pipe for waterworks plants are exceeding quiet. Demand for small sizes of pipe, such as plumbers and steamfitters require, is stronger but not what manufacturers desire.

The Oswego Machine Works, Oswego, N. Y., makers of 90 sizes of paper cutting machines, report orders for the past month very strong, inclusive of foreign business. The plant is crowded with orders.

The Sirrocco Engineering Co., Troy, N. Y., which within a year merged into the American Blower Co., is heavily booked. Among the recent orders are, one from the International Paper Mills Co. for four entire heating plants, including galvanizing iron, fans, heaters, and engines for driving fans, 14 large fans for ventilating subways of the Pennsylvania Tunnel & Terminal Co., New York, complete heating apparatus and fans for Wanamaker building, Philadelphia; six large ventilating fans and heating apparatus for Oliver building, Pittsburg; forced draft and ventilating equipment for the United States steamships Utah and Florida; large multivane fan for ventilating mine of Northwestern Improvement Co., of Tacoma, Wash., heating and ventilating apparatus for four new public school buildings at Birmingham, Ala.; 25 fans for Chicago & Northwestern Railway station at Chicago; fans for vessels under construction by Great Lakes Engineering Works and Toledo Ship Building Co., and nine fans for Peoples Gas Light & Coke Co. building, Chicago.

The Monarch Steam Blower Co., of Troy, N. Y., has received an order from the Smith Paper Co., Lee, Mass., to install 13 steam blowers.

A new agreement recently went into effect between the American Locomotive Co., Dunkirk, N. Y., and the boilermakers. An increase in wages of from two to four cents an hour has been granted the men. The new power house at the Brooks plant is now complete while a boiler shop and combination paint and tank shop are under construction. Soon an iron pattern shop will be erected and several old buildings rebuilt.

The Elizabethtown Railway Co., Troy, N. Y., has been incorporated for $80,000, and will operate a trolley line eight miles long between Westport and Elizabethtown. It is expected the company will be ready to negotiate for the purchase of rails and equipment before Jan. 1. Directors are Richard L. Hand, Francis A. Smith and George W. Jenkins of Elizabethtown.

It is understood some activity may be expected in the matter of the Rochester, Corning & Elmira Traction Co. A syndicate of Rochester men has equipped the property and the $2,000,000 bond issue has been subscribed. The line proposed will connect Rochester, Conesus Lake, Corning and Elmira.

The Fillmore Avenue Foundry & Iron Works of Buffalo, a leading foundry interest here, contemplates extensive improvements, and additions to its present capacity will be necessary at an early date to care for new business. The foundries of this district are doing a somewhat larger volume of business. There are still a few interests however that are far below normal in output.

NEW YORK.

Feeling is General of Permanence in Trade Improvement.

Office of THE IRON TRADE REVIEW,
Room 1005, No. 90 West St., Oct. 19.

The closing session of the National Builders' Association convention, held in this city Tuesday and Wednesday of last week, saw a complete change in the official organization of the association. Fred L. Eberhardt, of Gould & Eberhardt, Newark, N. J., retired from the presidency after serving two terms, and was elected first vice president. In his stead Fred A. Geier, of the Cincinnati Milling Machine Co., was chosen president, the office going to the west after being held for a long period by eastern men. P. E. Montanus, of the Springfield Machine Tool Co., Springfield, O., who has served the association for several years as secretary, was made second vice president, and in his place was chosen C. A. Hildreth, of the Whitcomb-Blaisdell Machine Tool Co., Worcester, Mass. Geo. W. Fifield, Lowell, Mass., was elected treasurer to succeed W. P. Davis, of the W. P. Davis Machine Co., Rochester, who retired. The spring meeting will be held in Rochester, that city being chosen over Atlantic City and New York.

Conversation with a considerable number of the machine tool manufacturers in the city for the meeting disclosed a very general feeling that the present active condition in the trade was permanent and should increase with the betterment in other lines to such an extent that 1910 should prove a banner year. In certain instances preliminary work is already being done looking to the enlargement or even the complete rebuilding of the plants now occupied. Another healthy feature is the more general disposition to place new designs on the market. During the depression not a great deal of attention was paid to this line of work, but now that the demand is increasing, a good many interests are ready with new designs. One manufacturer of sensitive drills expects to remodel every machine now being built, and the present models have been on the market only a short time, though meeting with excellent success.

The Climax Specialty Co., Seneca Falls, N. Y., is to erect a brick, steel and concrete foundry building at Schenectady, N. Y., at an estimated cost of about $50,000.

The Mohawk Foundry Co., Scotia, N. Y., has had plans prepared for a small plant, to consist of a foundry building 40 x 100 feet, a machine shop 30 x 40 and a core room 20 feet square.

CINCINNATI.

Orders Are Being Booked and Inquiries Are Coming In.

Office of THE IRON TRADE REVIEW,
First National Bank Bldg., Oct. 19.

But little change is noticeable in the machinery market in this center as compared with the preceding week. Orders continue in sufficient volume to encourage liberal operations of the plants and orders for forward delivery are being booked on some sizes and special machines upon which prompt shipment cannot be made. Most of the shops therefore have some orders ahead and the inquiry is continuing at a rate which gives promise of a continuance of steady business. The automobile industry continues to lead in the call for machine tools although there are plants reporting a more general demand. Railroad inquiry is light, yet there is ground for belief that orders from railroad shops will be placed in good volume before many months. The export business is insignificant with only an occasional order coming in. A number of the shops have arranged and are arranging for increasing their facilities with a view to greater

productive capacity. Manufacturers are generally optimistic as to the future and have confidence in a continued good demand for machine tools. A large number of the heads of the shops are in New York this week attending the N. M. T. B. A. meeting.

A delegation of about 100 prominent citizens and capitalists visited the plant of the American Rolling Mill Co., at Middletown, O., Oct. 12. The purpose of the trip was to have the subscribers to the common stock syndicate view the plant. The company recently increased its common stock capital $1,500,000 at $200 per share, the $3,000,000 realized from the sale of this stock, it is said, will be used to erect a new plant, probably at Middletown, O., which will have a capacity of 100,000 tons of ingot steel per year. The visitors were welcomed by the officials of the company headed by George Verity, the president. The party was escorted through the plant.

The Lodge & Shipley Machine Tool Co. reports a continuance of good demand and the month of October so far has been entirely satisfactory and promises to fully equal the September record. The shop is now working about 400 men on full time, has practically no stock and is behind on orders for some sizes.

The University of Cincinnati received some time ago from the city council an appropriation of $300,000 for an engineering building with equipment and $150,000 for a power plant. It is the intention of the University authorities to reserve about $50,000 of the $300,000 for the equipment of the engineering laboratories. Prof. Herman Schneider, dean of the College of Engineering of the University, has addressed the heads of the large manufacturing plants setting forth the objects to be attained in equipping the laboratories and asking for an expression as to how the city's industrial plants can best be served by this department of the University. It is intended that after due time has been given the subject a meeting will be called by E. F. DuBrul, chairman of the engineer college committee of the board of directors, to take up in detail the character and design of the equipment.

Last June Secretary Manley of the Cincinnati Metal Trades Association compiled a table showing the quarterly increases and decreases in the number of operatives employed by the shops of the members, using a percentage basis, accepting the number employed on June 15, 1907, as 100 per cent. This table reflects the rapid increase in business during the last three months, the figures for September 15 having been added to the table. The number of operatives would undoubtedly have exceeded the 72 per cent basis named if the shops had been able to secure desirable men and add to their working forces as rapidly as they desired. The table is given herewith:

	Operatives employed.
June 15, 1907	100 per cent.
Sept. 15, 1907	97 per cent.
Dec. 15, 1907	85 per cent.
Mar. 15, 1908	67 per cent.
June 15, 1908	56 per cent.
Sept. 15, 1908	53 per cent.
Dec. 15, 1908	56 per cent.
Mar. 15, 1909	62 per cent.
June 15, 1909	65 per cent.
Sept. 15, 1909	72 per cent.

BUFFALO EXPOSITION

Scored Great Success—Iron and Steel Well Represented.

Buffalo, Oct. 18.—The Buffalo Industrial Exposition, which opened at the Broadway Arsenal Oct. 6, closed Saturday night, Oct. 16, after the achievement of most gratifying results for the exhibitors. It was demonstrated that the floor space was altogether inadequate for the purposes of exhibition and before the close a movement was begun to provide a much larger hall as a permanent display space, for the Manufacturers Club of Buffalo has decided to continue these exhibitions as an annual event on a larger scale. A notable feature of the show was the representation of iron, steel and machinery manufacturers and their exhibits attracted considerable attention. The Lackawanna Steel Co. displayed steel sheet piling, interlocking, and other products of the company's plant. The ingenious photographic work of Edward W. Countryman, who devotes his entire time to photography of a scientific character at the Lackawanna Steel Company's warks, aroused much interest at the exhibit. The De Laney Forge & Iron Company showed a large crank shaft giving the public a chance to learn what was going on in steel making in Buffalo. The shaft was machined for one of Uncle Sam's new battleships. The Buffalo Gasolene Motor Co. showed several of its latest productions in marine and stationary gasoline engines. A large display of special and small drop forgings was shown by the General Drop Forge Co., a leading local interest in this line. The Crosby Co. exhibited sheet metals and small tools. The Robertson Drill & Tool Co. showed their principal tool products advantageously. A close neighbor was the Ever Ready Manufacturing Co., a new Buffalo enterprise engaged in the manufacture of a full line of fire extinguishers. Other equally noteworthy displays were made by the Aluminum Castings Co., Automatic Transportation Co., Auto Car Mfg. Co., Babcock Electric Carriage Co., Buffalo Copper & Brass Rolling Mill, Buffalo Engraving Co., Buffalo Forge Co., Buffalo Pitts Co., Buffalo Scale Co., Buffalo Steam Roller Co., Cataract Power & Conduit Co., Century Telephone Construction Co., National Lead Co., Taber Pump Co., Wegner Machine Co., Sterling Engine Co.

MARKED ACTIVITY

Shown in Central Pennsylvania—All But One Stack Blowing.

Harrisburg, Pa., Oct. 19.—Marked furnace activity and increased production have been the features of central Pennsylvania plants this month. In lower Susquehanna valley all but one furnace will be in blast by the end of this week, the two Bird Coleman furnaces of the Lackawanna Iron & Steel Co. in the Lebanon county district, being scheduled to start.

The Perry forge at Marysville near this city has been started after a long idleness.

The Middletown Car Works, which have been secured by the Standard Steel Car Co., of Pittsburg, has been started on an order for refrigerator cars.

Macungie furnace will be started within a short time by the Empire Steel & Iron Co.

The Lukens Iron & Steel Co. is operating almost all of its plant at Coatesville.

SUIT ON STRIKE POLICY.

The Buffalo Forge Co. has brought suit against the Mutual Insurance Co. of Waterbury, Conn., for $26,000. The suit is based upon a strike policy issued by the insurance company some time ago. The amount of the policy was $50,000, and on the day that it was issued employes of the Buffalo company declared a strike. The claim is put forth by the defendant company that the Buffalo company said that its shop was non-union, and that there had never been any trouble with its employes. Both of these assertions, the defendent says, it found to be untrue. The suit has been returned to the superior court at New Haven.

The regular quarterly meeting of the United States Steel Corporation will be held Oct. 26.

THE WORKS OF THE INDIANA STEEL CO.

Description of the Continuous Billet Mill Recently Put in Operation at Gary

Ground was broken in the summer of 1908 for the billet mill, the fourth great division of the Indiana Steel Co.'s open hearth steel plant at Gary, Indiana, and the first steel was rolled in it August 16, 1909.

The initial division of the company's great works to be put in operation was the blast furnace plant, although only five of the 16 furnaces are completed and blowing; the second division was the open hearth plant; the third, the rail mill; and the fourth, and latest, the billet mill, which forms the subject of this article.

Other departments are making progress, the merchant mills being nearly completed, the axle mill well under way, and ground broken for the plate mill, while work on the 560 Koppers by-product ovens is progressing rapidly.

The billet mill at Gary is in keeping with the other parts of that great plant, in that it possesses unique features and unusual capacities which place it in the lead in rolling mill practice at the present day. It is the only mill in which ingots are rolled down to billet size in one length and is the largest straightaway billet mill ever built, as it also is the first mill to roll directly from ingot to billet without any reverse motion. In point of capacity it passes all its predecessors, as it was designed to roll 4,000 tons in 24 hours, but in actual practice it will far exceed that figure. For instance, the designers of the 24-inch Morgan continuous mill, which is said to be the largest continuous mill in existence, place the capacity of that mill in excess of 300 tons per hour.

An idea of the general arrangement and unusual dimensions of the mill may be gathered from Fig. 2. The soaking pit building stands at right angles to the axis of the billet mill and to the left of Fig. 2. That part of the soaking pit building devoted to the billet mill is symmetrical in all respects with the portion allotted to the rail mill, of which it is merely a prolongation. There are 12 soaking pits set apart for the billet mill, and their dimensions and construction were fully described at page 625, Vol. XLIV, THE IRON TRADE REVIEW. Fig. 1 is a view of the range of soaking pits, showing the opening to billet mill at the left. The ingots are heated by producer gas furnished by 12 Hughes producers made by the Wellman-Seaver-Morgan Co., of Cleveland. The producers are of the standard Hughes type, mechanically operated, working on bituminous coal, and with a capacity for gasifying 2,000 pounds per hour each.

The ingots are 20 x 24 inches and weigh about 8,000 pounds each. From the soaking pits they are taken to the roughing mills on ingot cars of special type designed and built in the company's shops, and which run on a narrow gage track between the soaking pits and the side of the building, though not visible in the photo. The ingot car is controlled from a pulpit at the entrance to the billet mill, and by the same operator who controls the approach table to the roughing mill. The body of this car is designed to receive the ingot and to dump it on the approach table at the will of the operator.

The entire billet mill equipment up to and including the 12 x 12 inch horizontal shear at the end of table K of the 32-inch mill, and the 10 x 10 inch shear at table M was designed and built by the United Engineering & Foundry Co., Pittsburg, all the work except the gear cutting being done in its own shops. The blooming mill consists of nine stands of two-high blooming rolls arranged in tandem. The first four stands seen in Figs. 3 and 5 are identical with the first four stands of the rail mill, which were also fully described on page 628, Vol. XLIV, THE IRON TRADE REVIEW, and which, with their drives, and complete equipment were also designed and built by the United Engineering & Foundry Co., and are nominally 40 inch, although the first two are equipped with 42-inch rolls. In them the ingot is broken down to an 11½ x 14½ inch bloom, which is then turned end for end by a turntable with the object of reducing, as far as possible, the crop end losses due to rolling. The turntable can be seen to the right in Fig. 5. After leaving the turntable the bloom is given from two to five passes, depending on the size of the billet desired. These passes are given in five two-high 32 x 54-inch blooming mills also arranged in tandem, one pass being given in each stand.

The first two stands of the 32-inch group are arranged with only two passes in the rolls, one at either end of the roll, the middle being left at the full diameter in order to maintain strength. The bloom is guided to the pass desired by switches running from the side guards to the mill guides.

The next three stands are arranged with three passes in each, the middle pass being a blank large enough to

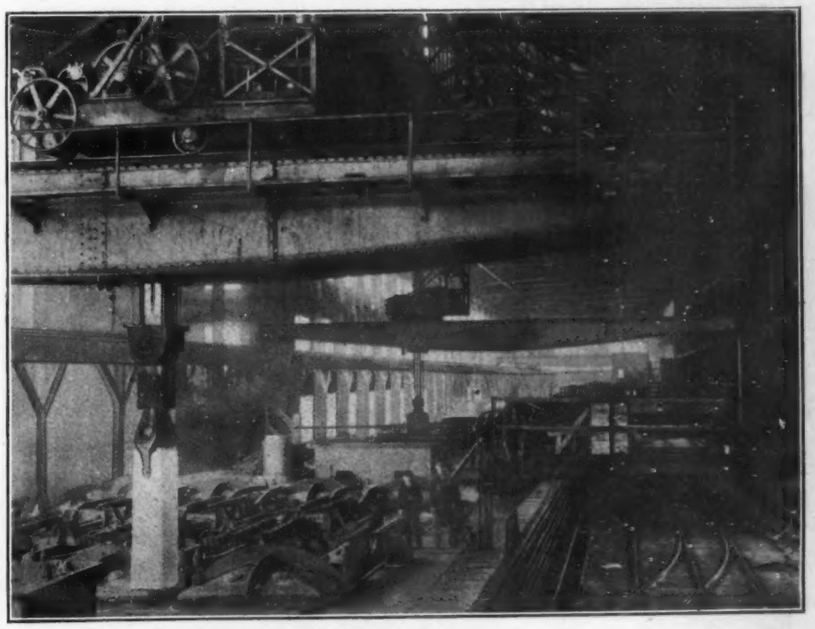


FIG. 1.—VIEW OF SOAKING PITS SHOWING INGOT CRANES. OPENING TO BILLET MILL AT LEFT.

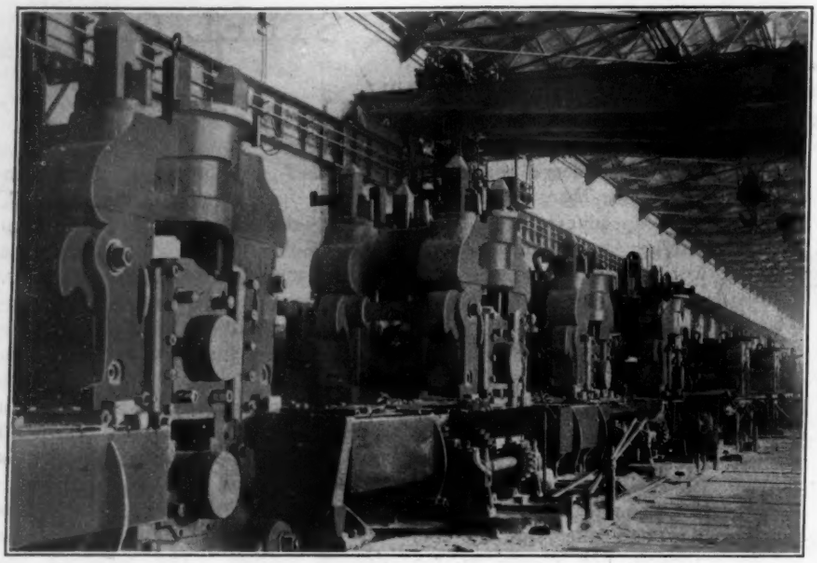


FIG. 3—THE FOUR ROUGHING MILL STANDS.

clear a 9½-inch x 11½-inch bloom. This arrangement allows the reduction of the piece to be stopped after any desired pass by switching into the blank pass.

The drive for the first four blooming mills shown in Fig. 4, is identical with that used in the first four rail mill stands, and consists of two 2,000 horsepower motors, each driving two stands through spur gears, but the drive of the five 32-inch mills is entirely different, as is shown in Fig. 6. These mills are driven by large bevel gears, to which they are direct connected. These gears, with the exception of the fifth, which is about 11 feet in diameter, are over 14 feet in diameter and are steel castings, with planed teeth, the Gleason Tool Works having built a special machine for the work. They are engaged by a line of five bevel pinions coupled directly to a 6,000-horsepower slow speed induction motor similar to those used in the rail mill, and situated between the third and fourth pinions. These motors as well as those for the 24 inch and 18 inch mills, were built by the General Electric Co.

As in the two-high stands of the rail mill, the manipulation of the bloom is accomplished by collared rollers on the tables which turn the piece as it passes over them. The general design of the tables is also similar to that of the rail mill, with the exception of the drives. The rollers are driven by Crocker-Wheeler mill type motors mounted on cast bases, which also carry an intermediate shaft, two speed reductions being used. These motors and the arrangement of drives can be readily seen in Figs. 5, 7 and 8.

The turntable mentioned above is situated between the 40-inch and 32-inch mills, and consists of a circular cast steel platform in the center of which is a flat bottomed trough-like recess more easily seen in Fig.

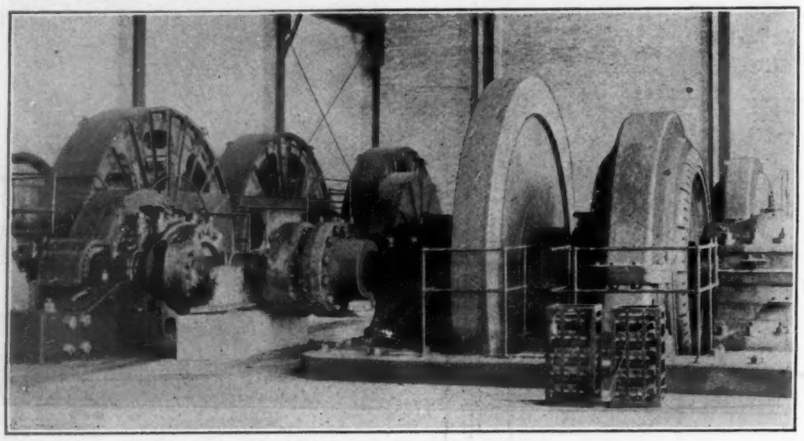


FIG. 4—THE MOTOR DRIVE FOR ROUGHING MILLS.

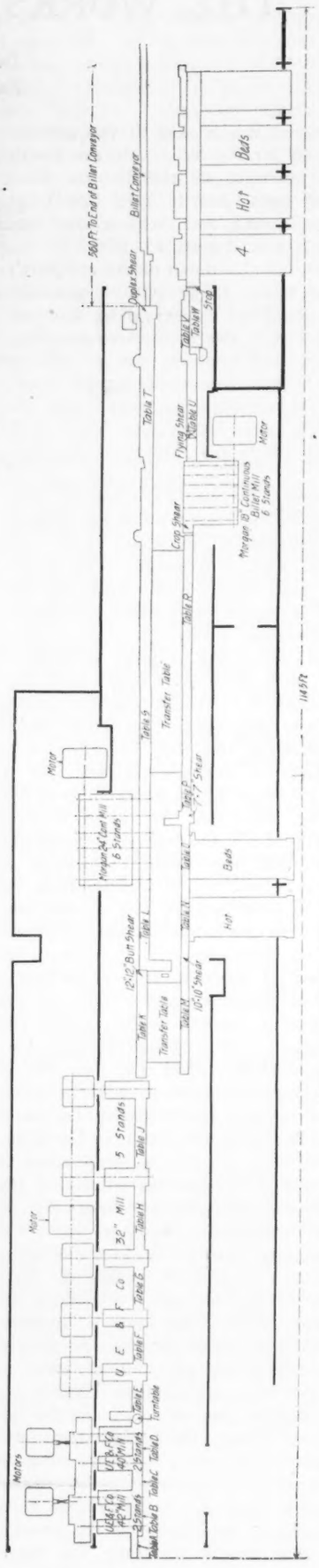


FIG. 1—GENERAL ARRANGEMENT OF CONTINUOUS BILLET MILL, INDIANA STEEL CO.

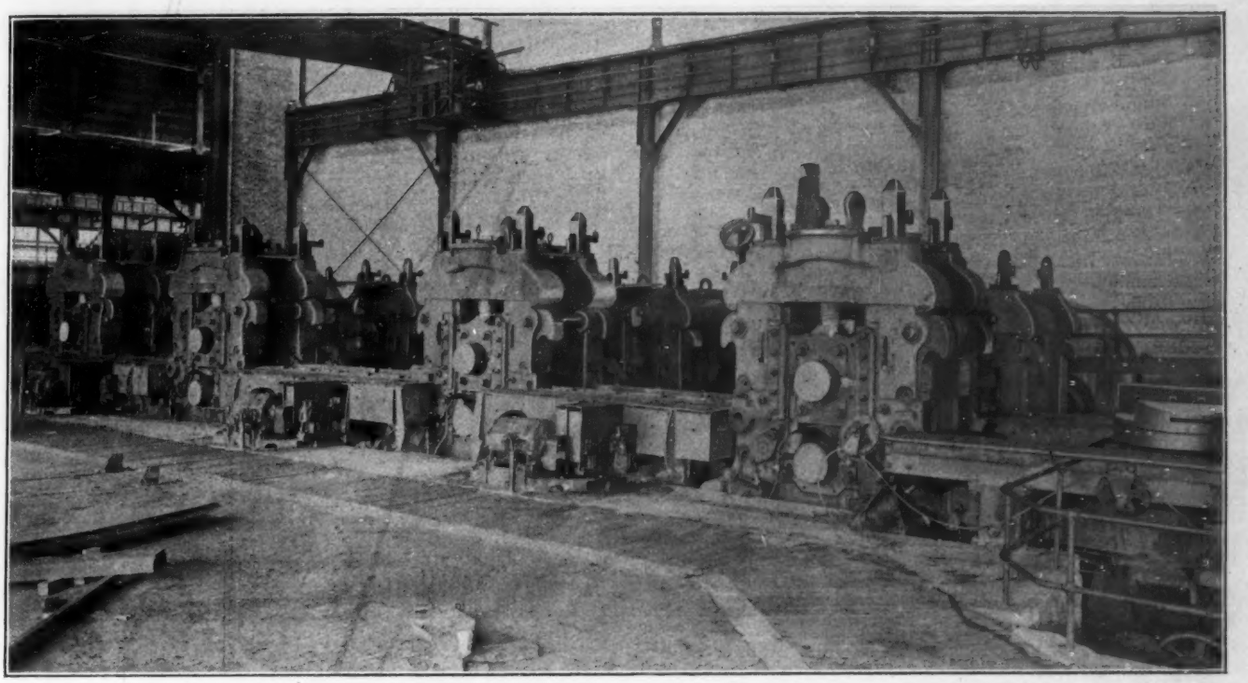


FIG. 5—ROUGHING MILL LOOKING TOWARDS SOAKING PITS, TURNTABLE AT RIGHT.

7 into which the bloom drops as the table rises. A row of three goads catches one side of the bloom as it falls, thus turning it on edge in the trough. The turntable, having risen high enough to allow the ends of the piece to clear the table and side guards, a worm and wheel arrangement driven by a motor turns it end for end, after which the turntable again drops to its normal position. The table is raised by a 25-horsepower Crocker-Wheeler mill-type motor which is geared to a crank, the movement of which raises the table by means of a connecting rod and system of levers. The balancing of the table is accomplished by an ordinary lever and weight balance. The table and the spindle which supports it are water cooled, a pipe throwing a stream of cooling water into the hollow casting when the table is down. The spindle and the worm wheel run in an oil bath and are carefully protected from scale, a point to which great attention was given in all parts of the design.

With the table in its raised position a piece coming through the rolls would strike the spindle and cause serious damage, and to obviate this danger a vertically moving stop, operated by the turntable, is placed before the rolls so that when the former is up it would be impossible to run a piece through the rolls. If for any reason a piece should strike the turntable when it is in its lowest position, the four comparatively light bolts which hold the table proper on its spindle would be sheared off, the lower parts being made to resist to the extent of the shearing strength of these bolts, without being dangerously strained.

After having passed through the last stand of rolls the bloom is run upon a table (table K, Fig. 2) fitted with a chain transfer leading to another table (table M) parallel with the first. These two tables serve as approach tables to the two bloom shears which mark the end of the 32-inch billet mill. The five stands of the 32-inch mill, with their Pinion Housings are shown in Fig. 8.

The shear which is in line with the mills at the end of table K is of the horizontal type seen in Fig. 9 and has a capacity of 12 x 12 inches. It is similar to the 10 x 10-inch horizontal shear at the rail mill and has the same features. The other shear at table M, is a 10 x 10 inch upcut bloom shear. This shear is driven by a 100-horsepower motor connected to it by a flexible coupling, similar to that on the horizontal shears. From the 32-inch mills the billets are run to the 24-inch and 18-inch mills or are taken off by transfers for storage or shipment.

The 24-inch continuous billet mill designed by the Morgan Construction Co., Worcester, Mass., consists of six stands of 24 inch rolls, each stand being driven through bevel-gears from the 6,000-horsepower motor driv-

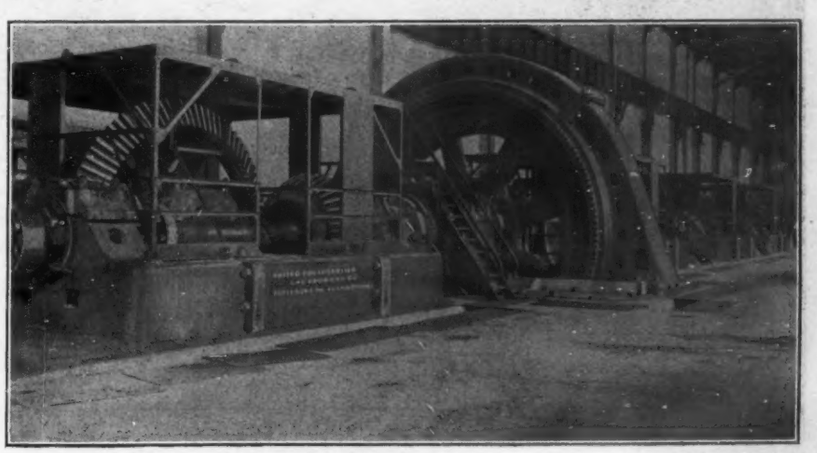


FIG. 6—MOTOR DRIVE FOR 32-INCH MILL.

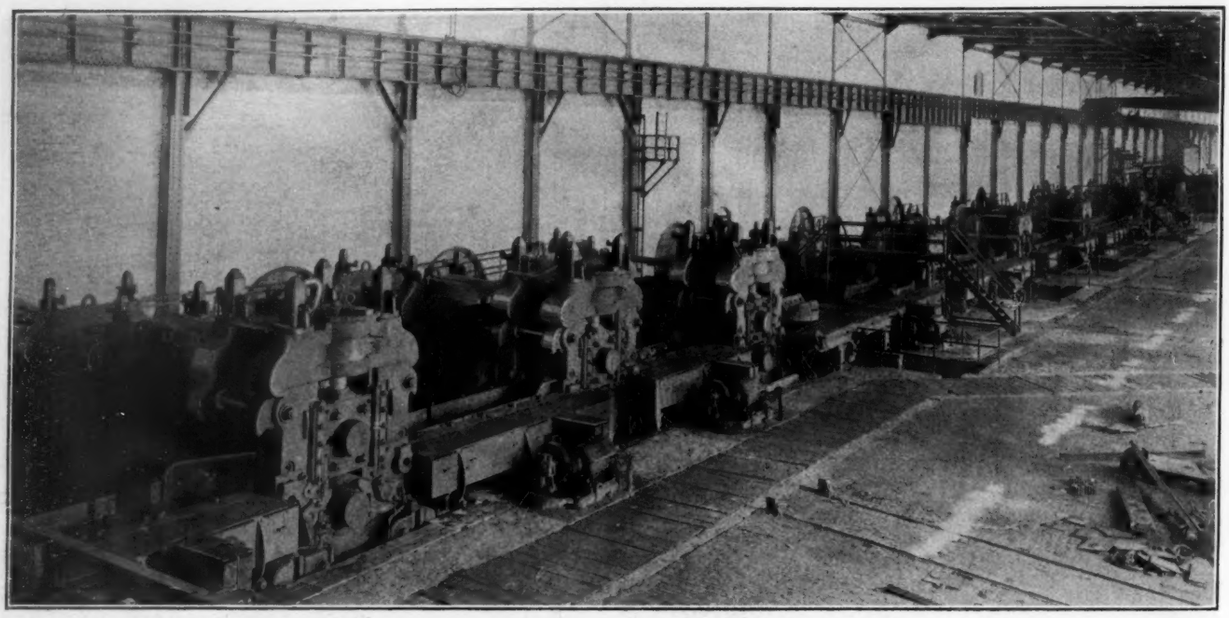


FIG. 7—40-INCH AND 32-INCH MILLS, SHOWING TURNTABLE BETWEEN.

ing the main shaft. Billets of various sizes are delivered, the capacity of the mill being, according to its designer easily in excess of 300 tons per hour.

The product of the 24-inch mill is received upon runout tables, (tables S and T) from which it may be cut up into short lengths by a duplex shear at the end of this table. There is provided alongside tables, a transfer about 160 feet long, and in case it is not desired to cut the material into short lengths, it is removed to a parallel table, (table R) whence it may be conveyed to the 7 x 7 inch shear for cutting into long lengths, and then transferred to the four cooling beds which also serve for larger blooms from the 32-inch mill, or as an alternative, may be entered into the six-stand 18-inch Morgan Construction Co. continuous mill, which with its drive may be seen in Figs. 11 and 12, also driven by a 6,000-horsepower motor, and receive there further reduction to various sized billets, which are cut automatically on an Edwards flying shear into 30-foot elngths as the metal issues from the finishing pass, per hour.

From the flying shear the severed billets run on a shear table which carries them to a skew assembling table having its rolls placed on an angle from the line of travel. Beyond this assembling table are four hot beds of sufficient capacity to

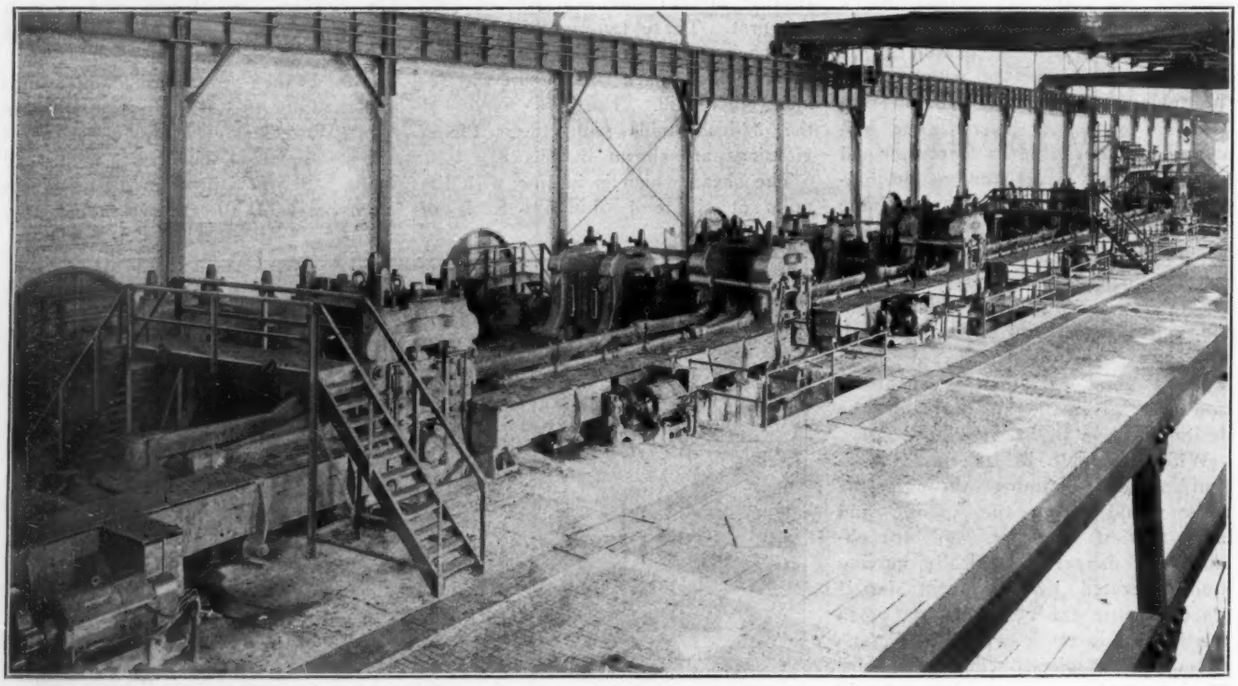


FIG. 8—THE FIVE STANDS OF THE 32-INCH MILL.

take care of the product of the mill. This 18-inch mill, it is claimed, will deliver billets at the rate of 150 tons per hour. The drive for the 18-inch mill is shown in Fig. —

The 24-inch mill was built from the Morgan Construction Co.'s designs by the Morgan Engineering Co., of Alliance, O., as sub-contractors, while the 18-inch mill was built to the Morgan designs by the United Engineering & Fdy. Co. The crop shear, in advance of the 18-inch mill, the flying shear, with receiving tables and billet assembly table, were built in the shops of the Morgan Construction Co., Worcester, Mass.

In addition to the above description of the machinery, it may be interesting to trace the course of the ingot, the bloom and the billet, and to point out some of the unusual and exceptional features of the equipment.

FIG. 9—12 x 12-INCH BUTT SHEAR, 32-INCH MILL IN BACKGROUND.

After passing through the 40-inch mill, the bloom, besides being "edged", may be turned end for end, if necessary, on account of a bad end headed for the 32-inch mill or in case experience shall show that better results are obtained when the breaking down of the bloom is not all done in one direction. At the end of the 32-inch mill is a butt shear leading from which is a conveyor built by the Steel company, by which the butts are taken up an incline and deposited in cars, in which they are returned to the open hearth department for re-melting. Between alternate stands of the 24-inch mill, there are straight and twisting guides and this is said to be the largest mill ever built in which the twisting guide is used.

After leaving the 24-inch mill, shown in Fig. 10, the billet may go direct, over tables S and T, to the duplex shear, and thence to the elevated loading bins seen in Fig. 14. This duplex shear, which cuts at one stroke two 7-inch x 7-inch billets or approximately 100 square inches of steel, is the largest electrically driven shear in the country and was designed and built by Mackintosh, Hemphill & Co., of Pittsburg. Or, as already described, the billet may be transferred to the 7 x 7 inch shears opposite the 24-inch mill, and thence to inclined cooling beds, at the upper ends of which are pockets into which the billets are dropped and from which they are loaded into cars with slings swung from cranes. Or, by dropping fingers over the pockets the billets may go from the cooling beds direct to the cars, in which they are either shipped or taken to other parts of the works. The 7 x 7-inch and 10 x 10-inch shears at the cooling beds just mentioned are said to be the

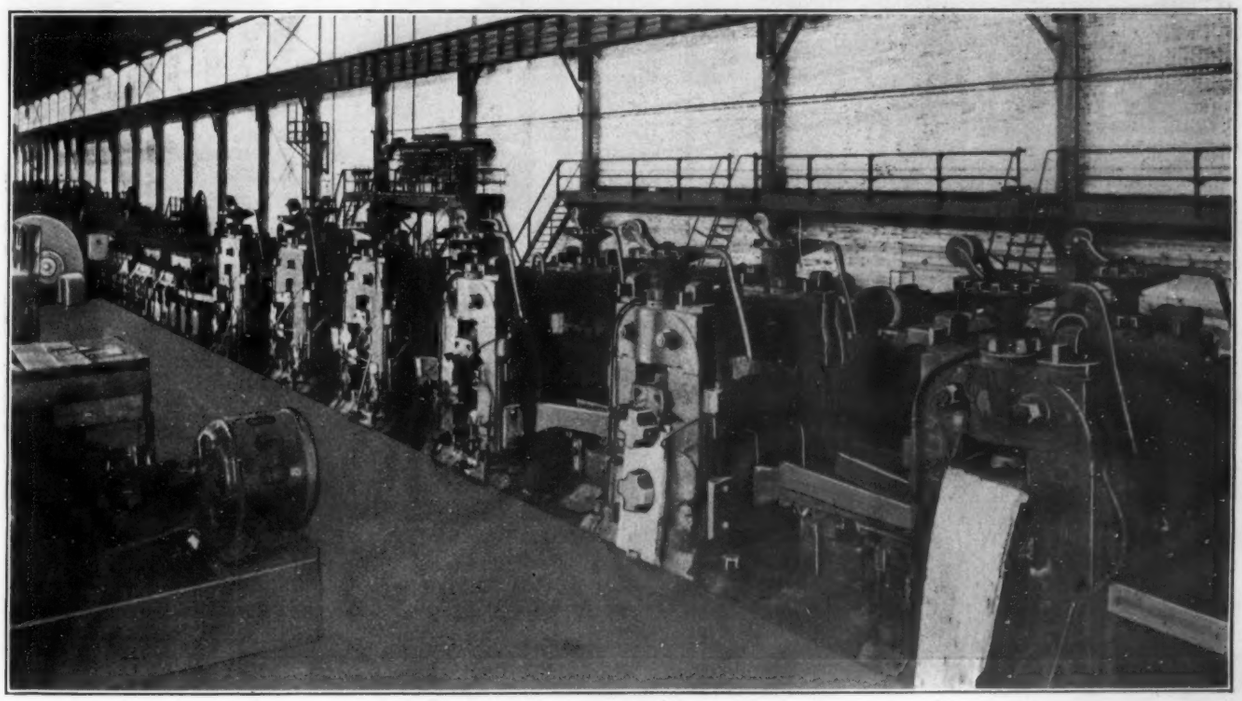


FIG. 10—MORGAN CONSTRUCTION CO'S 24-INCH CONTINUOUS MILL.

FIG. 11—MOTOR DRIVE OF 18-INCH MILL UNDER CONSTRUCTION.

largest electrically driven up-cut shears ever made.

When small billets are desired, the 18-inch continuous mill is used, at the end of which is the flying shear, in which the billets are cut to desired length while in motion. The billet, after passing through the last stand of the mill trips a switch set at any desired distance from the shear, and this switch electrically operates a steam valve which sets the shear in motion. While the arms of the shear move forward with the billet, the jaws clip the piece in two; the arms then return to their original position.

From the duplex shear previously referred to, a conveyor carries the billets up an incline to the loading bins, the lower ends of which open out over gondola cars and which are closed with counterbalanced gates. The billets may be tripped from the conveyor into any bin desired, and when a sufficient quantity is accumulated and has been sufficiently cooled by the water spray provided over each bin, the gates are opened and the billets drop into the freight cars beneath. The conveyors and the loading bins were designed and built by the company.

The reductions from the 20 x 24-inch, 8,000-pound ingot in the different passes are as follows:

40-inch Mill.

	Inches.
Pass 1	19 x 19¼
Pass 2	15 x 19
Pass 3	14½ x 15
Pass 4	11½ x 14½

32-inch Mill.

	(a)*	(b)*
Pass 1	11½ x 12	11½ x 12
Pass 2	9⅜ x 11¾	9 x 11½
Pass 3	9½ x 9⅜	9 x 9¼
Pass 4	8 x 9⅜	7½ x 9⅛
Pass 5	8 x 8	7½ x 7½

24-inch Mill.

Pass 1	8⅜ x 6½	8 x 8
Pass 2	6⅜ x 6⅜	8⅛ x 7 7/16
Pass 3	7 x 4⅝	8⅜ x 5⅛
Pass 4	5 x 5	6 x 6
Pass 5	5⅜ x 3⅝	6½ x 4 7/16
Pass 6	3⅞ x 3⅞	4⅝ x 4⅜

18-inch Mill.

	(a)*	(b)*
Pass 1	4 9/16 x 3 9/16	3 9/16 x 3 1/16
Pass 2	3⅛ x 3⅛	3 x 3
Pass 3	3⅛ x 2 11/16	2¾ x 2⅜
Pass 4	2½ x 2½	2¼ x 2¼
Pass 5	2⅜ x 2	2⅛ x 1 13/16
Pass 6	2 x 2	1¾ x 1¾

*Either pass may be used.

The roll speeds of the various mills are as follows:

40-inch Mill.

	R. P. M.
First two stands	7.1
Second two stands	14.1

32-inch Mill.

Four stands	40.2
Fifth stand	50.7

24-inch Mill.

First stand	20.34
Second stand	24.681
Third stand	28.47
Fourth stand	37.76
Fifth stand	44.43
Sixth stand	56.80

18-inch Mill.

First stand	39.33
Second stand	48.29
Third stand	66.36
Fourth stand	81.86
Fifth stand	108 29
Sixth stand	132.52

The entire mill is now in regular operation and its influence on the supply of billets will soon be felt.

FIG. 12—18-INCH CONTINUOUS MILL.

ELECTRICAL ENGINEERING NOTES.

By Ernest Kilburn Scott.

Transformer Iron from Pounds to Tons.

The connection between iron and steel making and electricity is getting more intricate every day, and in addition to a sound knowledge of chemistry and quick and reliable methods of analysis, the steel works assayer must know something of electrical methods of testing for magnetization, hysteresis loss, etc. Only the other day the assayer of one of the largest steel works in the country put queries to the writer which would have ranked as Honours questions in an electrical engineering examination, or as subjects for theses. Many points are not even touched by the brilliant work of Prof. Ewing, Sir R. Hadfield, and others.

Take transformer iron, for example, which it seems only yesterday was being bought in pounds avoirdupois, and which today is sold by the fortunate firms who have specialized in it, by thousands of tons at prices which would make a steel rail maker envious. Well, neither the steel maker nor the electrical user really knows why one rolling gives a high hysteresis loss and high ageing, and the next rolling gives a low loss and practically no ageing. "Ageing," by the way, is the name given to the tendency of some steels to increase their hysteresis loss after being used for some time. The writer is careful to write "after rolling," for the manipulation of iron or steel has apparently as much to do with its magnetic qualities as the original mixing of the metals or the chemical analysis.

Fig. 13—Edwards Flying Shear.

New Hysteresis Tester.

One of the latest pieces of apparatus for testing hysteresis and eddy-current losses is that by Epstein. Twenty-two pounds of test strips are required to make a test, and there has to be some careful machining to get the joints to butt accurately. This has led Messrs. Lloyd & Fisher to devise a similar apparatus to that of Epstein, but which only requires about 4½ pounds of testing iron, each strip measuring 10 inches by 2 inches. No machining is required, because instead of butting the ends together they are interleaved at the edges by special corner pieces, and in this way leakage is reduced. An interesting point brought out by tests with it is that hysteresis of both ordinary and silicon steel, magnetized normal to the direction of rolling, is 5 to 10 per cent higher than that of those magnetized parallel to rolling, but the eddy-current loss is the same in each case. Artificial "ageing" by baking always increases the hysteresis loss, but may increase or may decrease the eddy-current loss. It may

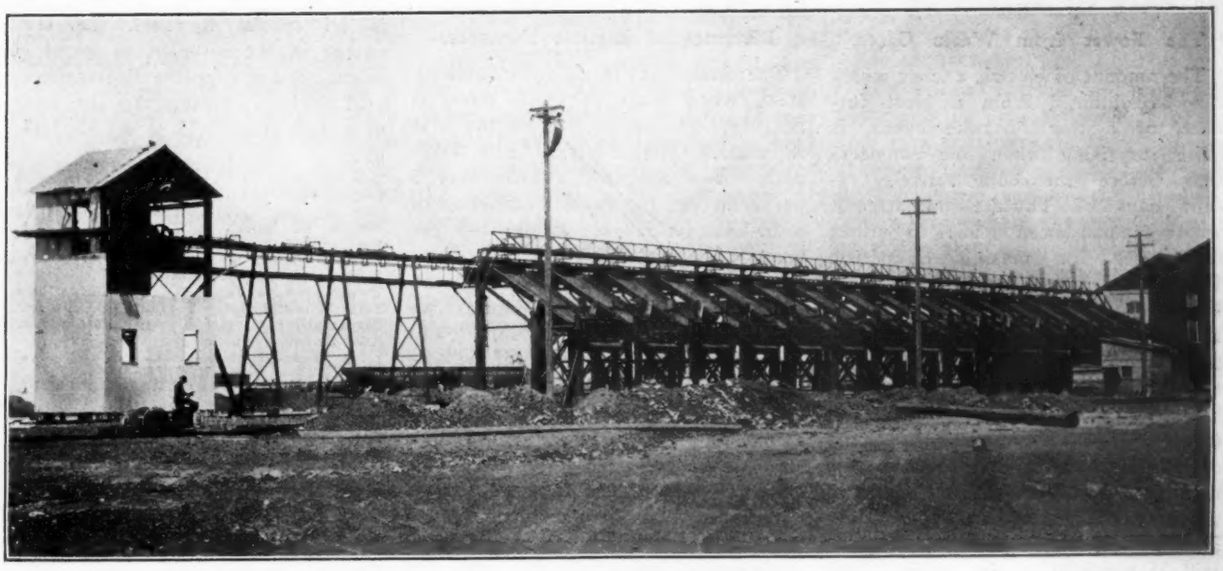


Fig. 14—The Loading Bins and Conveyor.

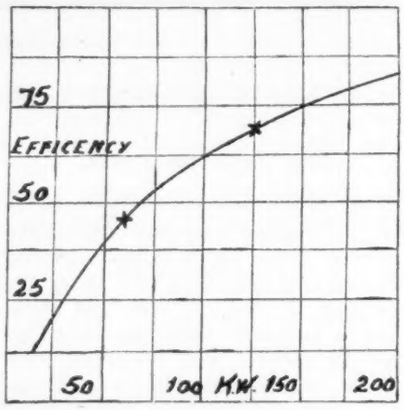
also alter the law of variation of hysteresis with flux density.

Municipal Electric Supply from a Steel Works.

Within the last two years the United States Steel Corporation has built a mgnificent new plant at Gary, near Lake Michigan, in Indiana. Although it has practically founded the township, the Corporation has no voice in the actual municipal government except in so far as it is the largest property owner, and therefore pays the most rates. At the same time the steel works has much to do with the municipal services. For example, the furnace gases produce electric power in the works very cheaply, and so the municipality has been relieved from laying down its own generating plant. All that was required was a small sub-station and about a dozen 300-kilowatt transformers to step down from 6,600 to 2,200 volts. Six of these transformers supply current to pumps which provide the public water supply, and the others are for lighting and general power purposes. All the public lighting is by arc lamps, and the workmen's cottages are lighted by electricity. At the same time a gasworks has been erected to supply gas for cooking, etc. The working together of a large steel works and a municipality is a sign of the times, and it is a pity we do not hear more of it. Some of our small municipal electricity works, which are struggling along with their own plants, might do worse than consider the advisability of taking a cheap supply from a steel works or colliery power station if one is in the vicinity. There is no glory or honor in making electricity if you can buy it cheaper.

The Power from Waste Gases.

The amount of electric energy which can be obtained from a blast furnace, or a row of coke ovens, is quite surprising when one considers that before the comparatively recent days of Thwaite no attempt whatever had been made to utilize the gases for making electricity. Here, for example, are the figures for a blast furnace capable of making 250 tons per 24 hours. About 10 tons of coke are required per hour, and no less than 60 per cent of the heat energy in the coke leaves the furnace in the form of gas. Some of this heat is needed to meet the requirements of the furnace itself in the way of heating and power, but allowing an ample margin, there is still 25 per cent of the original heat energy of the coke available, which if put into gas engines is equal to 7,500 brake horsepower. Again, take a row of coke ovens turning out 200 tons in 24 hours. After deducting losses, about 2,000 brake horsepower is available from the surplus gas, and if all the small unsalable coke is used in a gas producer, a further 1,000 brake horsepower can be obtained. Surely it must be evident from the above that when erecting blast furnaces or coke ovens it would be an act of deliberate waste not to erect a power station at the same time. Instead of ringing round suppliers of cheap electric energy with regulations, as the craze for municipalization has tended to do, it would be more sensible for government to come down hard on anyone or any firm that deliberately wastes our national assets of heat energy. The difference between our national assets of power and, say, those of Norway, is that we are burning, and



EFFICIENCY CURVE FOR ELECTRIC FURNACE.

in many cases frittering ours away, whereas the water power of Norway goes on for "aye."

Efficiency of Electric Furnaces.

The induction furnace for making steel, when made in small sizes, is not very efficient because of the heat radiation. The electrical and magnetic losses are only a little over 5 per cent, yet the overall efficiency of a 60-kilowatt furnace is only 45 per cent. When made, however, for double the power its efficiency is 70 per cent. Now, by plotting these figures we can connect them by a curve, and from the annexed diagram it will be seen that it has a most promising tendency towards, say, 85 per cent for a 200-kilowatt furnace. It won't do to speculate further, although the temptation to do so is great, but if the writer knew as much about steel making as he does about electrical engineering, he would get into the business with a furnace of several hundred kilowatt capacity as soon as possible. Half the makers who are tinkering about with small tinpot electric furnaces are "hoping" that they won't show successful results, but they are doing so, and it is no use shutting one's eyes to the revolution in iron and steel metallurgy that is coming.

Electric Drives for Rolling High Carbon Steel.

Since it became the fashion to drive rolling mills by electric power, there has been a surprising amount of information published regarding the power taken and the performance of the mills generally. This flood of information is due, of course, to the ease with which electric power can be accurately measured and registered, and it suggests the thought that in the old days before electricity, rolling mill men didn't really know what their mills were doing and were capable of. As long as they turned round, even if it was with a "dot-and-carry-one" motion from an old beam engine, they seem to have been satisfied. One of the latest contributions to rolling mill literature is a paper before the American Institute of Electrical Engineers, in June last, by Brent Wiley, The mills described are for rolling high carbon steel—seven stands of three-high rolls and one finishing stand of two-high rolls driven by a two-speed two-phase, 60-cycle, 2,200-volt induction motor with squirrel cage rotor. The motor is connected to the rolls by a 3-ply belt 42 inches wide, and the power is 600 horsepower at 600 revolutions and 450 horsepower at 450 revolutions. The steel rolled has 0.8 to 1.29 of carbon, and is 1 3-16 inch by 1-32 inch, and 5-16 inch round. There is no special flywheel, the stored energy in the rotor being found sufficient to get over the fluctuations of load. The following are the figures of a test from 6:55 a. m. to 3:49 p. m.:

Size of stock rolled	1 in. by 0.193 in. by 36 ft.
Carbon, per cent	1.27
Size of billet	1¼ in. by 1¼ in. by 5½ ft.
Weight of billet	26.6 lbs.
Number of billets rolled	1,121 lbs.
Total weight of billets rolled	29 818 lbs.
Actual operating time	408 min.
Time lost	126 min.
Total kilowatt-hours	1,140
Kilowatt-hours, friction load	408
Kilowatt-hours, including friction per ton of metal rolled	71.2

At similar temperatures it appears to take exactly the same power to roll high carbon steel as it does to roll ordinary mild steel. Owing, however, to the high percentage of carbon, the harder steel billet must not be heated as hot as the milder steel.—*Iron and Coal Trades Review.*

THE MODERN STEEL SHEET PILE

A History of the Development and Application of the Earliest and Modern Types.

By J. F. Springer.

(Continued from last issue.)

The Jones & Laughlin Pile.

The Jones & Laughlin sheet-piling is one of the very latest types. In fact, the patent under which this style of sheeting is manufactured by the Jones & Laughlin Steel Co. was only issued a year ago—Oct. 13, 1908. It is, however, one of the most promising of all the forms. This is largely owing to its simplicity. By referring to Fig. 32, where we have a panel shown in section, we may readily see that the great preponderance of weight consists of I-beams. These are used without change or alteration—except perhaps for a hole in the upper end of the web to facilitate withdrawal. There is thus secured the very great advantage of usability in ordinary structural work after the performance of temporary pile duty. It will be noticed that the member which connects two I-beams is itself a modified I-beam. The edges of the flanges have been bent to parallel the web and thus afford grooves into which the unmodified I-beams interlock. Now the character of the interlock thus secured deserves our very careful attention. It will be seen that the base of the I-beam flange is supported and the edges held in a close grasp. The fixity and strength of this arrangement will be apparent. It precludes any considerable variation from a rectinear alignment. But such variation may be secured by bending longitudinally the web of the unmodified I-beam. An example of a right-angled corner is shown at each end of the figure. And automatic alignment in a straight line is in itself a matter of importance. The rigidity of the interlock secures also a rigidity of the wall as a whole. And that the interlock is not merely rigid but strong may be gathered by considering the details. A horizontal thrust operates, on the whole, against the girder-form, which constitutes the interlocking piece, in the direction of its greatest strength. The same thrust operates, in detail, against the flanges of the interlocking form close up to the web, and these react against the flange of the I-beam in the direction of its greatest strength. This account states the matter generally. There is, no doubt, under a bulging action of the soil, a strain against the I-beam flanges and the clipping edges of the interlocking member in the direction of the line of the wall of piling, which will tend to bend or break the metal involved. But this is a matter which can be provided against by using a sufficient amount of material.

As to the watertightness of the interlock—this is, apparently, very well cared for by the character of the interlock. There is no provision for a temporary or permanent seal of clay, cement grout, or other material. But experience, although short, seems to warrant the expectation of a high degree of imperviousness, especially for temporary work.

In driving the piling, an I-beam and an interlocking member are driven as a unit. The interlocking piece is made a couple of inches the longer and this permits the two pieces to be shipped together, as the spare inch available at each end makes it possible to bend the ends of the clipping portions in such way as to retain the interlocking bar on the I-beam during transportation and handling. When driving begins, the two become flush at the head immediately, and the interlocking element penetrates the soil ahead of its companion I-beam.

When this sheeting was first put on the market, a 15-inch I-beam was used solely. But it was found that engineering requirements demanded lighter forms as well, so that now it may be obtained in a range of five sizes. These are made up from two different widths of I-beams—the 12-inch and the 15-inch. These vary in thickness of web and in total depth of flange. Thus, in the lightest form the thickness of web is 0.344 inch and the depth of the shape is 3.94 inches. Assembled, this sheeting has a depth of 5 inches and weighs 35 pounds per square foot. The web of the interlocking piece is 0.21 inch. From this size onward, the weight per square foot increases until 42.25 pounds is reached. In this, the I-beam is 15 x 4.87 inches and has a

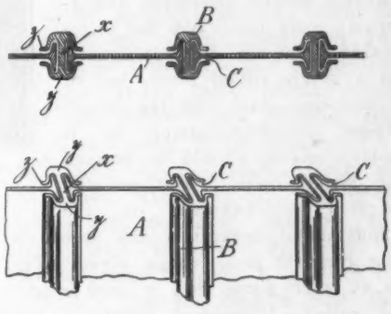


Fig. 33—Section and Perspective From Harold Patent Specification.

web thickness of ½ inch. The depth of the assembled sheeting is 6 inches.

That this piling is easily driven is apparent upon a consideration of the form of the section. A special cast-steel driving cap is furnished by the manufacturers.

The entire absence of protruding bolt-heads or nuts or anything of the kind is a striking advantage. In consequence, there is presented an absolutely uniform surface—the cross-section is everywhere the same. Resistance to penetration—if we exclude surface friction—is entirely confined to the foot of the pile complex. Further—there are thus no parts which

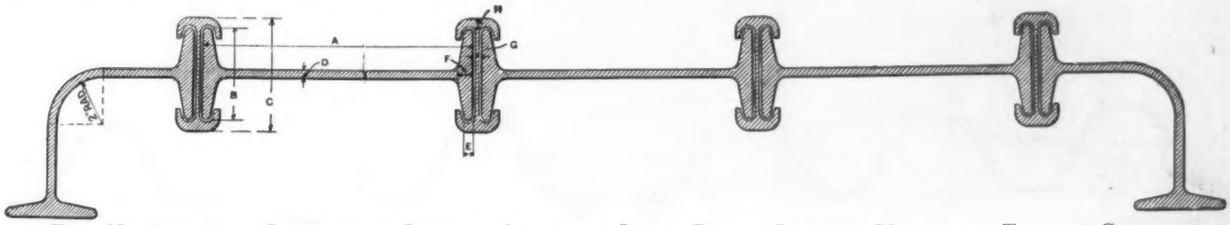


Fig. 32—Assembled Sections of Jones & Laughlin Sheet Piling Showing Method of Turning Corners.

may be stripped off and break up the integrity of the piling.

As often happens in connection with a patented article, there are changes introduced not affecting the patent but facilitating the commercial manufacture or otherwise benefiting it as a salable article. These modifications are frequently not such as involve actual invention and justify an additional patent, and the article may still be just as securely covered by the original patent. The inventor of this sheeting is James J. Harold, of Jersey City. In Fig. 33, we have a cross-sectional view as disclosed in the specification of the patent, also a perspective view. Prior to the filing of the application for this patent in November, 1903, Harder had filed an application for a similar form but constructed differently. In this former invention the I-beams were used, but the interlocking element did not consist of a single rolled piece, but of a coupling plate and lug strips. These coupling plates, so it was intended, should be formed of sheet metal. But in the present improvement on the fundamental invention, the interlocking member is a single piece. This is of such form that it may readily be rolled. This fact, taken in connection with the strength of the interlock, mark this improvement as a valuable one. In the sectional view, Fig. 33, the curved flanges are given a reverse bend. This seems to serve no very useful purpose, and has been discarded in actual manufacture. The patent obtained on this general style is quite broad as may be seen by considering the first two claims:

"1. In sheet piling a coupling for rolled shapes having a web or connecting member and oppositely arranged hook-engaging members.

"2. In combination I-beams and a coupling bar or beam having a web portion between the I-beams and hooks engaging the flanges of such beams."

It can readily be seen that the piling as actually made is well covered by these claims.

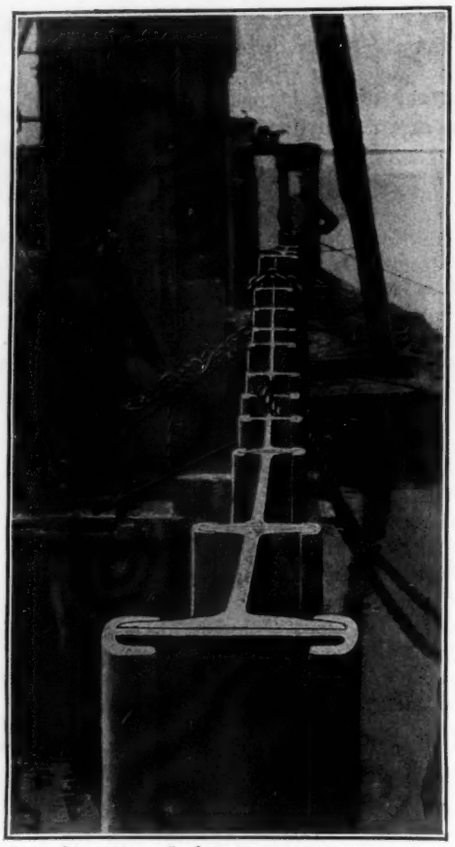


FIG. 34—JONES & LAUGHLIN PILING AS DRIVEN.

This Jones & Laughlin sheeting was not energetically taken hold of until recently. About 100 tons was used, however, in the construction of one of the pockets of the great cofferdam at Black Rock Harbor, Buffalo, and the manufacturers seem very agreeable to engineering inspection of this installation. The contracting firm of J. G. White & Co. bought a considerable quantity of this sheeting for use in one of the far western states and there have been other important orders.

In Fig. 34, we have a view of a line of this piling. Its smoothness of surface, simplicity of construction and substantial character are plainly apparent.

The Wemlinger Corrugated Pile.

A treatment of the subject of steel sheet piling would not be complete without a reference to the Wemlinger pile, which, while not a rolled shape in the same sense as the preceding types, is nevertheless a convenient and important type.

The Wemlinger steel sheet-pile is a type which makes little or no claim to suitability for severe cofferdam duty. But in the field to which it is suited, this piling appears to be one of the best. This sheeting is made from steel plates. In this respect it differs from most of the successful styles of American sheet-piles. But this manufacture from steel plates carries with it a very pronounced advantage. We are thus enabled to secure economically a very considerable variety of thickness, for, within the maximum limit of 5/8 inch, any thickness of plate obtainable may be made up. And let us remember, this variation is obtainable at little or no expense, except for the actual increase in weight of metal.

The plates are made up in sheets with longitudinal corrugations—five to a pile. There are thus three on one face and two on the other. In assembling the particular style known as the *double lock*, the adjoining piles overlap somewhat over two of the corrugations—all corrugations overlapping being fitted into each other. This method of arrangement will best be understood by consulting the sectional view in Fig. 35, where one entire pile is shown in outline and halves of the two adjoining ones are shown in solid black. It will be noticed that a double clip is riveted along the exterior of the middle corrugation of each pile. This affords an interlock for the adjoining piles. This interlocking strip does not extend quite the entire length of the pile but falls short at each end. It thus does not have to bear the shock of penetration imparted to the foot, nor that of driving felt by the head. It is to be noticed that it is easy to get a degree of flexibility in this interlock by varying the curvature of the outer edges. When this type of piling is assembled as shown in the figure, the linear distance covered by a single pile amounts to 14 inches, or 1.17 feet. For on observing the

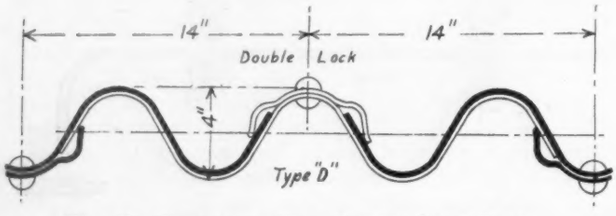


FIG. 35—WEMLINGER PILE, DOUBLE LOCK TYPE.

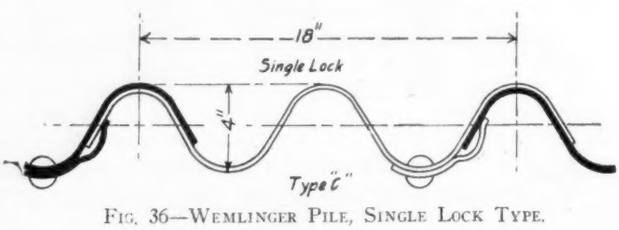


FIG. 36—WEMLINGER PILE, SINGLE LOCK TYPE.

FIG. 37—WEMLINGER PILING DRIVEN FOR RETAINING WALL.

figure, it will be seen that in the distance of 28 inches we have one entire pile and two halves. So that in estimating the *number* of lengths required for a given linear extent of work, we simply divide by 1 1/6. Thus, if we wish piling for a wall 100 feet long, we shall have to use 86 piles. Each pile is, however, 24 inches wide.

The thickness used for the interlocking clip is the same as for the body of the pile itself.

Of course any desired thickness can be used within the extreme limits, but when in place the piling will be double, the locking strip completing the second thickness where otherwise it would be wanting.

It will be observed that in respect to watertightness this piling should be rather effective. The corrugations intermesh with each other and give a large surface of contact. At any rate practice seems to justify confidence in a good joint.

Instead of using very thin sheets in order to get, when doubled, a moderately thin wall for light work, a newer type where the sheeting is not doubled, is obtainable. This is the *single lock* piling. By examining the sectional view shown in Fig. 36, the difference in construction will become apparent. The overlap involves but little more than a single corrugation at each side of a pile. Two clips, each interlocking with a single adjacent pile, are used. When in place, the wall of sheeting is thus partly double and partly single. Of the total of a little over five corrugations, two remain uncovered by locking clips or other piles. Without attempting absolute exactness, we may get an idea of the weight of this sheeting in place by estimating that the wall is 60 per cent double—counting the clips—and 40 per cent single.

In Fig. 37 we have an example of the type shown in Fig. 35 driven to form a retaining wall in connection with reconstruction operations on an important building. About 650 linear feet was used in this job having a single thickness of 3/16 inch. The wall had thus a driven thickness of ⅜ inch and was driven 14 foot. The uninjured heads of these piles are worthy of note, although they were driven with a steam driver having a striking weight of 2,000 pounds.

The ease with which the corrugated steel sheeting can be driven is well exemplified by the fact that it is sometimes possible to do the work by hand. Another method, sometimes possible, is by means of a small hammer which may be mounted on the head of the pile itself. This hammer may be operated by compressed air or steam. The man who controls this apparatus stands upon it and thus adds his weight in the direction of penetration.

Before leaving this type of sheeting, it is well to notice the symmetry of the pile. The locking clip is almost the only thing which disturbs the absolute symmetry of the cross-section. These clips affect it merely as to front and back. On account of the depth of the section, which depth is equal to the diameter of the circle of corrugation, it is impossible that they can throw the vertical line let fall from the center of gravity outside the penetrating foot of the pile. In other words—the pile may be depended upon to drive vertical, in so far as its own weight is concerned. And this may become a matter of some importance. To guide these piles, no special provisions seem to be necessary. The corrugations and the clip hold the new pile to position pretty securely. And, unless conditions are extraordinary, nothing further would seem to be required. As to driving, some remarks have already been made. It may be added, that a 1¼-ton drop hammer has been found suitable. However, a 1½-ton steam hammer is said to be preferable, for the reason that the rapidity with which the individual blows succeed each other, gives rise to a continuity of impulse which has been found effective. It would seem that penetration from one blow is scarcely complete when the next is given.

FIG. 38—CUTTING PILING BY THE OXY-ACETYLENE PROCESS.

Conclusion.

It must be borne in mind that we are not to expect any one type of sheet piling to perform all services with maximum effectiveness. Some types excel in stiffness in proportion to weight of metal, some excel in watertightness, some in capability of being driven through difficult strata, some in the strength of the interlock. Some excel for temporary construction, some for permanent. This diversity of adaptability is to be expected.

In concluding these articles on sheet piling, it is to be noted that England seems to have been the very first in the field with a practical form of metallic sheeting. Germany is, perhaps, to be regarded as the land where the modern steel sheet-pile originated. The United States has given serious attention to the subject for but a few years. Yet it would seem that in this short period, the advance made has placed this country distinctly in the lead. And Germany is, probably, to be rated next. So far as the writer is aware, there has been no type of sheet piling developed in England in which the elements are simply rolled forms. At least three such have been developed here—the United States Steel Sheet Piling, the Lackawanna Steel Sheet Pile, and the Jones & Laughlin Steel Sheet Piling. In every one of these there is an entire absence of fabrication. The piling is complete and ready for use when it leaves the rolling mill. In forms made from plates and fabricated from standard structural shapes, the United States is more or less in competition with Germany. The various styles made by George Jackson, Inc., and by the Wemlinger Corrugated Sheet Pile Co. are forms which will scarcely be affected by any present foreign competition.

An engineer in considering the various American types—and he will need to consider no others—will, of course, not merely inquire which style is best, but which is best for his particular case. Into the settlement of this question, many factors enter—character of soil to be penetrated, the pressure to which the piling will be subject when in place, the presence of water, its head, whether the work is permanent or temporary, the cost of driving, the cost of the piling when delivered at the scene of the work. The fabricated types and one of the rolled forms (the Jones & Laughlin) are especially valuable in temporary construction on account of the great salvage value of the structural shapes. This is, perhaps, offset with the corrugated sheeting (Wemlinger) by the facts that while it is not available for structural purposes, it is available for re-use as piling and that precisely the weight desired may be secured. When the construction is permanent and there is real exposure to corrosion, then composite or reinforced concrete sheet piling must be taken into consideration.

Into all of these, steel enters either entirely or in part. Cast iron, although recently used by British engineers for important works in Egypt, is no real competitor. Concrete by itself is out of the question on account of its inability to withstand lateral thrusts. The wooden sheet-pile because of the difficulty, and consequently expense, often experienced in driving, is at a disadvantage. So that from the foregoing considerations it is not difficult to see that the importance of steel to the sheet piling question is really a vital one. The all-steel sheeting and the steel-reinforced concrete sheet-pile are the modern engineering means for the construction of retaining and cofferdam walls.

In using any type of steel sheeting for permanent construction, it is often impossible so to drive it that the heads of the piles are perfectly even or approximately so. It is at times desirable, therefore, to cut them off after driving. One method of accomplishing this is by the use of the oxy-acetylene blow-pipe. The form of flame used in welding is used to heat the metal to a high temperature. A jet of oxygen follows closely the heating flame and effects the actual cutting, which is really a kind of combustion—the free oxygen uniting with the highly heated steel to form the chemical combinations. In Fig. 38 is shown the oxy-acetylene cutting apparatus at work upon the United States steel sheet-piling.

In concluding this treatment of metal sheeting, the experience and invention of the past ninety years may be summed up by saying that even cast iron piling has commended itself for permanent construction to a very conservative nation in spite of the objectionable character of the material and of the ineffectiveness of the interlock usually employed. Steel as a material has practically all the advantages possessed by cast iron together with its own superior strength. As to effectiveness of interlock there is probably no American steel sheeting now on the market which is not provided with a strong interlock that can be broken only in the vertical direction. The steel sheet-pile has come to stay in respect both of temporary and permanent uses.

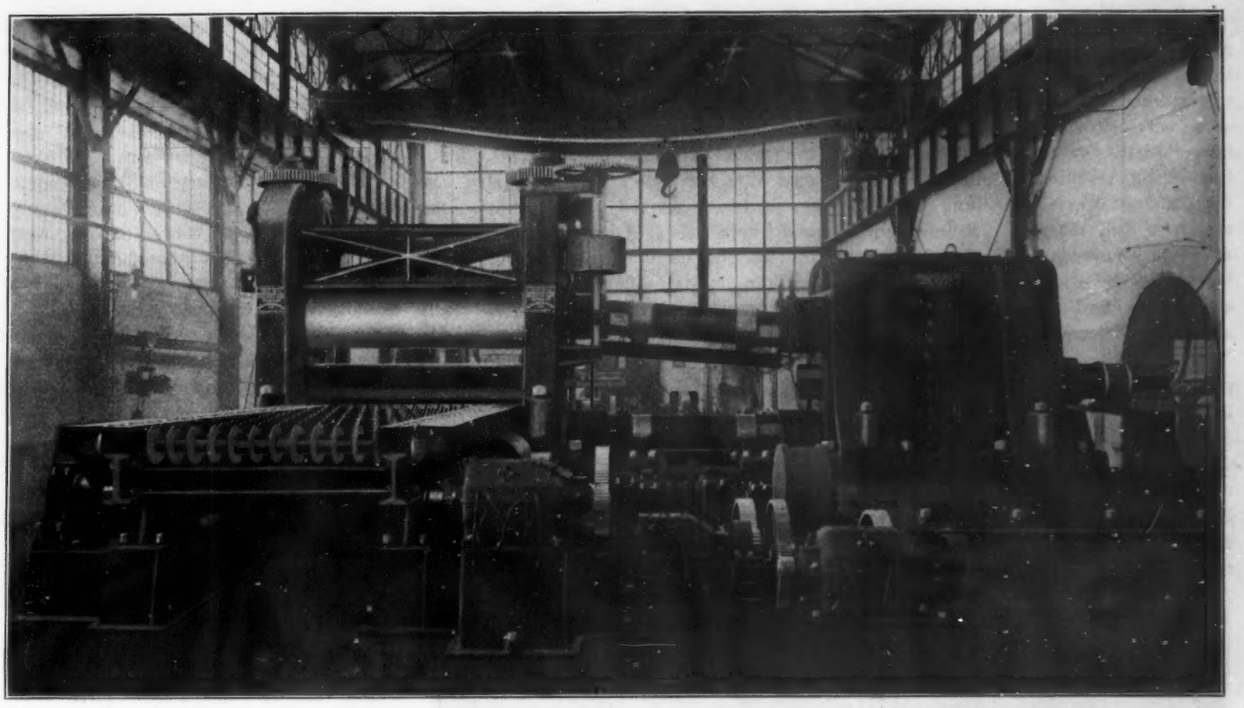
THE NEW 152-INCH MILL OF THE OTIS STEEL CO

The Latest Development in Large Rolling Mills for Heavy Plate

The recent installation of the new 152-inch plate mill at the plant of the Otis Steel Co. has given added distinction to Cleveland as a center of the steel industry. This mill, which was built by the Morgan Engineering Co., Alliance, O., is the largest and most modern of its kind in the country, with the exception of that of the Worth Bros. Co. at Coatesville, Pa., which has a capacity equally as great, but has not the improvements which distinguish the Otis mill. By the operation of this mill, much business which heretofore went to eastern producers because of lack of facilities for the production of big steel plate among mills west of Pennsylvania, will now be diverted to Cleveland.

The mill is what is known as a 42-inch x 152-inch, three-high plate mill; that is, the two main rolls are 42 inches in diameter and have an effective length of 152 inches and will roll plate almost 152 inches wide. In addition to the two main rolls, there is a middle roll, which is 26 inches in diameter and 152 inches long. Plates from ¼ to 1½ inches thick can be rolled. At the extreme width of plate, however, extreme length can not be attained, but with the weight of ingot available and with a width of 72 inches, plates can be rolled up to 35-foot lengths.

This mill is the heaviest of its type that has ever been built, and probably never before has there been assembled in one machine such an enormous



THE OTIS 152-INCH MILL IN THE SHOPS OF THE MORGAN ENGINEERING CO. FRONT VIEW.

weight of steel castings, the total weight aggregating approximately two million pounds. There are six castings which will average almost 50 tons each, and the problem of transporting these from the foundry to the shops, to the erecting floor and thence to the steel plant was one of no small magnitude. The mill is equipped with what is known as lifting feed tables, the piece rolled being passed through between the middle and lower roll onto the feed table on the opposite side of the mill. This table is then lifted and reverses the piece through the mill between the middle and top roll when it is received again by the table on the entering side. This process is continued until the plate has been rolled to the required thickness, when it passes to the cooling bed. Aside from the unusual size of this machine, the most noteworthy feature about it is the electrical control of the lifting tables, which was designed and installed by the Electric Controller & Mfg. Co., Cleveland.

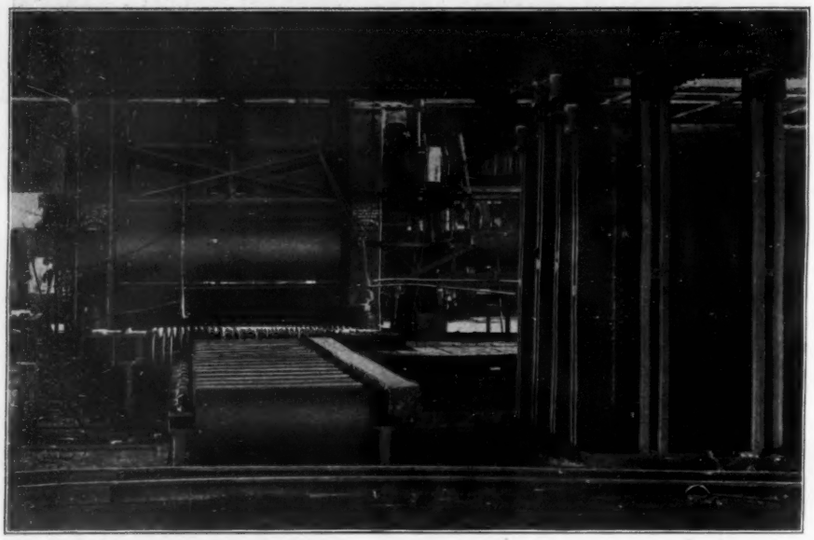
THE OTIS 152-INCH MILL, REAR VIEW.

Three magnetic switch controllers are employed for regulating the following motions: First—the main roller tables; second—the table lift; and third—the screw-down, the middle main roll being shifted by a hydraulic manipulator. Of these three, the first is deserving of no special mention, it being merely a full magnetic 150 horsepower reversing controller, embodying features whereby the current input during acceleration and reversal is limited to a safe predetermined value.

The operation of the other two controllers and hydraulic manipulator being inter-connected, it is necessary to consider their performances jointly. Invariably, when the floating or middle main roll is depressed, the tables must be elevated, and vice versa. Furthermore, the action of the middle main roll must be so regulated that it will not jam either the stationary bottom roll or the movable top roll. This implies that its movement must be arrested precisely at a fixed point in the downward direction, and just as precisely at varying points in the upward direction. Since the table lift and the middle main roll are always operated at the same time but in opposite directions, advantage of this fact is taken to control both of these motions by one lever, this governing both the magnetic control and hydraulic manipulator. Very accurate stopping is secured through the agency of a dynamic braking switch, which, immediately upon the opening of the motor connections, converts the motor into a generator and thereby produces a retarding torque.

The table lift motor runs non-reversing except in emergency cases, and its normal cycle is to drive a crank through one half of a revolution for the upward movement of the table, or through the other half of the revolution for the downward movement of the table. In this instance, also, cut-outs stop the motor after the table lift crank has described a half revolution, and here also dymamic braking is utilized for its definite retarding affect on the inertia of the armature and other moving parts.

While an attempt has been made to have this control equipment as nearly as possible automatic, yet there have been retained simplicity of connections. In other words, it has been so designed that the controllers shall be sufficiently automatic to facilitate extremely rapid operation, and yet at the same time be so simple that any needed repairs can be easily and quickly made.



THE OTIS 152-INCH MILL ERECTED IN THE OTIS PLANT.

The rolls are driven by a 3,000 horsepower steam engine, built by the William Tod Co., Youngstown. The fly wheel of this engine alone weighs approximately 100 tons. This mill takes the place of the company's old 126-inch mill, which was reduced to scrap to make room for the new plant.

Development of a Large Rolling Mill.

In connection with the installation of this plant, it is interesting to trace as far as possible the development of the large rolling mill. Mills rolling up to 100 inches were subject to no such gradual development as in the case of larger mills. For many years the mills had had capacity for widths up to 100 inches, although in the early 90's a mill capable of rolling plates over 100 inches was unusual.

The necessity for the large rolling mill was felt in the early 90's, when the Standard Oil Co. specified plate of sufficient width to be used as seamless bottoms for tanks and oil stills; also at about the same time structural steel work was undergoing a development and the large plate girder was coming into use more and more, this in itself creating a notable demand for the large plate. It was not long before the demand was felt from another source—the railroads, which were beginning the evolution of the modern locomotive, in which 10 to 12-foot plates are used in the construction of the fire box, with a single seam, where formerly small plates were used.

At the same time the demand for extra wide plates was felt in marine work, both in ship and boiler construction. In the latter case, especially, the tendency to eliminate seams is becoming more and more pronounced. In the latest designs of marine boilers, only two plates are used, thus eliminating entirely the middle girth seam and staggered butts.

The largest rolling mill in the United States in 1890 was a 126-inch mill, owned by the Otis Steel Co.; the next in size was a 120-inch mill, owned by the Lukens Steel Co.; and the third was a 119-inch mill, owned by the Carnegie Steel Co. Soon after, the Paxton Rolling Mill Co. installed a 126-inch mill at its Harrisburg plant, which later was absorbed by the Central Iron & Steel Co. This mill gave considerable trouble and was in operation for only a short time.

About 1895, S. T. Wellman, of Cleveland, purchased an idle plant at Chester, Pa., which was the nucleus for the organization of a new company. A 126-inch rolling mill was installed at this plant, but upon the dissolution of this concern, which occurred not long after, the mill was purchased by the Carnegie Steel Co. and placed in the Homestead works, where it is doing duty today.

So far, the 126-inch mill held the record for size, but about 1898 a 130-inch mill was built by the Bethlehem Steel Co. For some reason or other, it was never operated by this concern, but was sold to the Carnegie Steel Co., and also installed at the Homestead plant. The following year, the Cambria Steel Co. also installed a 130-inch mill, and about the same time a 134-inch mill was placed by the Lukens company.

From this time on, the development has been comparatively rapid, for in 1904 the Lukens company installed another mill 140 inches in size, which was

followed by a 152-inch mill the next year, owned by the Worth company, which, until the recent installation of the Otis company's 152-inch mill, was the only one of its size in the country.

Whether or not the rolling mill is capable of further development as to size, is an open question. Two factors enter into the case which seem to preclude further growth—the increase of power requirements, which are out of proportion to the increase in size of plate, and the difficulties attendant upon loading and shipping plates over 12 feet in width. The first objection is, of course, not insurmountable, for if extreme sizes become a necessity, quotations will be made accordingly, although the chances are that prices high enough to offset increased power costs would make their use prohibitory except for special work.

The difficulty of transportation is not so easily set aside, however. To handle plates larger than are now being rolled would necessitate the construction of a new type of car, and it is doubtful whether the volume of such business would ever justify such a procedure. Granting the possibility of this, it would even then be nearly impossible to transport the material, as the height of cars or of the arrangement of the material on the cars is necessarily limited by tunnels and bridges. There may be, however, some way of getting around these difficulties and the 160-inch rolling mill may not be far distant after all, especially where shipment can be made by water. An indication of this is an inquiry received a short time ago by one of the large steel companies for a flanged boiler head 144 inches in diameter. This would necessitate a circular plate of at least 156 inches in diameter, the rolling of which is an impossibility in this country today. Referring to this inquiry, a representative of the steel company in question said—"Engineers are always wanting something bigger than they can get". The getting of it is usually accomplished, nevertheless, and, in substance, is progress.

The accompanying photographs are by courtesy of the Morgan Engineering Co.

INTERESTING HISTORY OF A PITTSBURG FIRM.

An interesting historical sketch of the development of the firm of Mackintosh, Hemphill & Co., Pittsburg, is presented in an elaborately illustrated catalog covering the broad scope of its line of manufacture of machinery for iron and steel works and allied industries, which has been issued by the company. This is as follows:

While the firm of Mackintosh, Hemphill & Co. has been the owner of the Fort Pitt Foundry since 1878, the establishment itself dates back to the early part of the last century, the guns for Perry's fleet in the war of 1812 having been cast there. In 1825, Alexander McClurg became the owner, the foundry then producing everything in the shape of cast iron from shot and cannon up, the engines for the Portage road having been built here, also the first locomotive west of the Allegheny mountains. Naturally, the plant at that time was only equipped with crude and primitive appliances, the cannon being bored and machined in lathes worked by horsepower, but despite the great disadvantages under which it was necessary to work, the machinists of those days turned out work of remarkable accuracy.

The Fort Pitt foundry enjoys the distinction of being the oldest on the ground now covered by the city of Pittsburg to survive on its original site. There were a few other foundries that antedated it, but all trace of the sites of their early establishments has been lost.

Alexander McClurg was succeeded as sole owner of the plant by the firm of McClurg, Pratt & Wade, about 1830. During the period intervening between that time and 1873, the personnel of the firm naturally changed several times. Fire wiped out the entire establishment in March, 1858, leaving no trace of the buildings. The machine shop was not rebuilt at that time, attention being confined to foundry work. The facilities of the plant were greatly increased at the outbreak of the Civil war in order to take care of the large demand for heavy ordnance.

In 1858, James Hemphill, Dr. W. S. Mackintosh and N. F. Hart organized the firm of Mackintosh, Hemphill & Co., and began business on an adjoining site. William Wade became interested in the company a few years later, and the firm, as thus constituted continued in business on the original site for 20 years. In 1878, Mackintosh, Hemphill & Co. acquired the Fort Pitt Foundry. James Hemphill proved one of the leading spirits in the advance of the steel industry, being considered one of its foremost authorities. It was to his initiative that the building up of this company was principally due.

Upon its acquisition by Mackintosh, Hemphill & Co., in 1878, the plant was completely remodeled, preserving nothing but the buildings, the latter being improved and additional new structures added. A comprehensive equipment of what were then the most modern machine tools was installed, and since that time these have been supplanted as often as improvements have been made, constantly being replaced by advanced types.

Important installations of various rolling mills, engines and miscellaneous machinery for iron and steel works on heavy metal working, are shown by illustrations in the catalog. The company is a builder of blooming mills ranging in size from 32 to 48 inches, both two-high reversing and three-high, universal slabbing mills for rolling any desired thickness and of widths varying from 10 to 48 inches and structural, plate, rail and merchant mills of several different designs and of various sizes. Simple engines, reversing engines, blowing engines and air compressors are also built as well as miscellaneous machinery for use in iron and steel works and allied industries. The company's engines are designed particularly with reference to rolling mill requirements.

The foundry department of the company includes complete equipment for the production of iron, steel and brass castings, a pattern shop and a laboratory. The iron foundry is equipped with cupolas and air furnaces for making castings up to 240,000 pounds, and the steel foundry has three open-hearth furnaces with a combined capacity of 160,000 pounds. The company is a prominent manufacturer of steel gears and pinions, steel rolls, etc. The catalog is from the Bartlett-Orr Press, New York.

GERMAN MACHINERY EXPORTS.

According to official statistics from Berlin the German exports of machinery somewhat increased during the first seven months of 1908 as compared with 1907. The German Export Review presents the following statistics (referring to double hundredweights) and comments:

	1907.	1908.
Locomotives	169,920	271,599
Steam engines	208,323	288,506
Agricultural machines	106 418	119,149
Mining machinery	75,873	71,034
Machines for iron industry	252,892	283 215
Machines for textile industry	359.444	354 186
Machines for wood manufacturing	51,214	56,752
Machines for preparation of food	140 988	151,248

The competition of the United States and England being very sharp, German manufacturers have probably made lower prices in order to enable them to meet such competition, so it is doubtful whether the profit occurring was in proportion to the quantity of shipments. Labor is to be had for almost all branches of industry; in the machinery branch 307 persons applied for 100 vacancies. A strange feature of the labor market is the fact that many metal workers are seeking employment for machine work. At present the supply of labor exceeds the demand in all branches of manufacture. Machinery imports

have fallen off 7.7 per cent within 12 months. The export of locomotives has increased 60 per cent, of steam engines 40 per cent, and of agricultural machinery 13 per cent, as compared with the same period in 1907.

COST OF MANUFACTURING IN MUNICIPAL PLANTS.

The well known practice of municipal and government authorities in suppressing fixed and operating charges in presenting statements of cost is again illustrated in the following abstract from an article on the subject in *Engineering Contracting*.

The water department of the city of Boston maintains a machine shop in which gate valves, hydrants, corporation cocks, stay cocks and various miscellaneous supplies are manufactured, gates and hydrants are repaired and miscellaneous work in drilling pipe branches and other machine shop work is carried on. In 1908 this shop was made the subject of an investigation by Metcalf & Eddy, engigineers, Boston finance commission, to determine whether the cost and character of the manufacturing done, when compared with market prices and qualities of similar products, were such as to make the operation of a municipal shop wise, and, if not, to what extent the work at the shop should be curtailed. The report of Metcalf & Eddy is a valuable one, not alone in giving actual costs, but also for the manner in which it brings out the very common fact to such municipal enterprises that the cost records seldom include all the costs, and consequently the published statements of economy are never fairly comparable with the cost of purchasing in the open market or of contracting for work.

The first step in the investigation was a valuation of the shop and its equipment by Charles T. Main, mechanical engineer of Boston. It was found that the shop was established 16 years ago and that most of the machinery was purchased at that time. The original cost was $41,300, and the present value is $21,650.

Accounting System.

Careful shop records are kept of the time spent by the men upon each article manufactured and records are also kept showing the cost of rough castings, which are bought from private parties under contract. At the end of each year these records are summarized to show the cost of each article manufactured. The accounts, however, it was found are incomplete, since they take no account of any cost to the city on the articles in question other than those of stock and of direct labor. *The cost of holidays and other lost time* for which men are paid *is not included, neither is the cost of superintendence, clerical service, fuel, engineers and firemen and other shop labor, which is indirectly involved in manufacture, but which cannot be charged to any particular piece of work. Further, all interest and depreciation charges on the plant are omitted.* The result of taking account of these items, as will be shown below, makes the true cost to the city about 35 or 40 per cent greater than that given by the department accounts.

It was found by another investigation that as a whole the average cost of holidays and sick leave was about 8 per cent of the labor pay roll. It appears that in the shop this cost is approximately 11 per cent, and consequently to obtain the true cost of the direct labor which should be readily chargeable to these manufactures it is necessary to add 11/89 or 13 per cent to the labor cost shown by the books of the department. Similarly it is found that the cost of superintendence, clerical service, fuel, oil, tools, engine room labor and other general expenses is such as to increase the labor cost of manufacture by 80 per cent. In other words, *the actual cost of labor, including general expenses, in the manufacturing work is really 93 per cent greater than that shown by the books of the department.* Finally, it is necessary to add the annual amount of interest and depreciation upon the plant employed in this work. Interest on $41,300 at 4 per cent amounts to $1,652 per year, and depreciation to 1/16 of $19,650, or $1,229 per year, so that the total fixed charges are $1,652 + $1,229 = $2,881 per year for interest and depreciation on plant. These fixed charges are apportioned to the various items of work in the shops as follows: The total cost of manufacture, including stock and labor, but no fixed charges, was 84 per cent of the cost of running the shop. The cost of repairs, including labor only, was 11 per cent, and the cost of drilling pipe branches and similar work, including labor only, was 5 per cent of the total cost. Of the total fixed charges, therefore, these same percentages are charged each to its kind of work. The effect of this is to add 7 per cent to the cost of labor and stock in manufactures and 1 per cent to the cost of repairs.

COST OF SPECIAL GATE VALVES MANUFACTURED AT THE BOSTON WATER WORKS DEPARTMENT SHOPS IN 1907.

Size in.	No. made.	Cost of Direct labor.	Cost of Stock.	Total per dept., books.	True total labor cost.	True cost, exc. int. and dept.	Total true cost inc. int. and dept.
3	15	$ 4.83	$ 7.87	$ 12.70	$ 9.33	$ 17.20	$ 18.40
4	45	7.74	9.76	17.50	14.96	24.72	26.40
6	25	10.38	17.32	27.70	20.00	37.32	39.96
8	67	11.00	25.26	36.26	21.22	46.48	49.65
10	49	18.75	38.05	56.80	36.18	74.23	79.40
12	39	18.30	47.55	65.85	35.30	82.85	88.50
16	15	36.94	68.04	104.98	69.30	137.34	147.00
20	3	68.72	182.36	251.08	132.70	315.06	337.00
24	2	86.97	204.87	291.34	167.80	372.17	398.00

PUBLICATIONS RECEIVED.

FACTS WORTH KNOWING ABOUT GRINDING WHEELS.—Distributed gratis by Norton Co., Worcester, Mass. 12 pages.

ELECTRICAL AND STEAM MACHINERY, ETC.—Distributed gratis by MacGovern, Archer & Co., New York City. 39 pages.

BULLETIN OF FOUNDRY INFORMATION.—The S. Obermayer Co., Chicago, Ill. Distributed gratis.

"PENNSYLVANIA" SWING HAMMER CRUSHER.—Circular distributed by Pennsylvania Crusher Co., Philadelphia, Pa.

ROTHCHILD ROTARY GATE. — Circular distributed by John Simmons Co., 104 Centre street, New York City.

ELECTRICAL SHEETS.—Bulletin No. 1 distributed by West Penn Steel Co., Brackenridge, Pa.

POWER TAMPED CEMENT BRICK MACHINE.—Circular distributed by Hohn Cement Brick Machine Co., Indianapolis, Ind.

SAVING IN FUEL, LABOR, WATER, STEAM AND REPAIRS.—Circular on feed water heaters distributed by Bates Machine Co., Joliet, Ill.

PRODUCTION OF COAL IN 1908.—By Edward W. Parker; advance chapter from mineral resources of the United States, calendar year 1908; 211 pages; Washington, D. C., U. S. Geological Survey.

THE PRODUCTION OF PRECIOUS STONES IN 1908.—By Douglas B. Sterrett; advance chapter from mineral resources of the United States for calendar year 1908; 59 pages; Washington, D. C., United States Geological Survey.

ELECTRIC MOTOR CONTROL.—By A. C. Eastwood, president the Electric Controller & Mfg. Co., Cleveland, O. Distributed gratis.

ENGINEERS' HAND BOOK.—Published and presented gratis by Erie Engine Works, Erie, Pa. 88 pages.

NEW CATALOGS.

CUTTING MACHINES.—The George Gorton Machine Co., Racine, Wis., are distributing a 16-page, 8½ x 11½ inch catalog, descriptive of their new heavy duty cutting off machines, illustrated in THE IRON TRADE REVIEW of Sept. 30. A two-page insert gives very complete records of tests made on these machines by distinterested parties and users.

PUNCHING AND SHEARING MACHINES.—We have received from the Covington Machine Co., Covington, Va., a 28-page 6 x 9 inch catalog, descriptive of a line of punches and shears, both single and double, horizontal and multiple, universal and combined; together with boring and facing and drilling machines, bending and straightening rolls, etc.

FOUNDRY BUILDINGS AND EQUIPMENT.—In an 18-page, 6½ x 8½ inch booklet, Wonham, Magor & Sanger, 30 Church street, New York, supply illustrations of a number of modern foundries and their equipment built and furnished from their designs. This firm makes plans and specifications for construction equipment or reorganization of foundries their specialty.

FOUNDRY TOOLS.—The S. Obermayer Co., Cincinnati, are distributing a 42-page, 6 x 9 inch catalog of electric tools for foundry and cleaning room equipment, such as chipping hammers, hand and breast drills, screw feed portable drills and reamers, portable bench grinders, buffers, etc.

ELECTRIC DEVICES FOR MACHINE TOOLS.—In bulletin No. 101 the Reliance Electric & Engineering Co., Cleveland, deal with the application of Lincoln Variable Speed Motors to different types of machine tools, giving power curves and tables for various conditions.

IRON AND STEEL INSTITUTE MEETING IN LONDON

British Railroad Equipment Discussed. Paper read on "Comparative Tests for Cast-Iron." Places of Historical Interest Visited.

(Continued from last week's issue.)

Sir Hugh Bell again presided at the concluding meeting of the Institute on Thursday morning when a paper, by Dr. R. Price-Williams, of London, on "The Maintenance and Renewal of British Permanent Way" was read by the secretary.

Ebenezer Parkes, M. P., wished to know whether the rates and taxes were included in the total working costs of the railway.

The question was ruled out of order by the president, on the ground that it trenched upon controversial matters.

Mr. Parkes demurred to that view, but accepted the chairman's ruling.

Important Details Omitted.

Tom Hurry Riches, of Cardiff, pointed out that several details of importance were omitted, particularly as to the change in the class of steel used in tires. Nor had anything been said as to the improvement in the sectional profile of the tires. The formation of the tire flange and the cross-section of the tire had had a material influence on the life of the rail, and it was a good thing that in recent years closer attention had been given to the need for co-ordination as between the engineers of the road, and the engineers of the rolling stock. That had led to more harmonious working. Another important matter was the increase in the tare weight of the vehicles. The number of vehicles used in proportion to tonnage was less than formerly, showing that the capacity of the vehicles had greatly increased, and not only the paying load might be included in calculations as to the wearing weight on the rails, but also the unpaying weight. Expenses were continually increasing in connection with the permanent way, and he hoped the members would give those matters very close attention.

Question of Great Importance.

The president said it was impossible to over-estimate the importance of the question. In Great Britain, the prospect of increased railway mileage was not great. The country, with 23,000 miles of railway, had probably about reached its fullest development in that direction, and that made the question of repairs of greater interest. Of all trades in the kingdom, the steel trade was the most international. The demands of the world's railways must be perfectly stupendous, and it would be very interesting if some statistician would consider what was required year by year, to maintain the railways of the world in proper condition. It was clear that the demand for rails would exist for more years than they need bother about. Statistics on railway management were the most ineffective that could be conceived. For example, they had no information as to the tonnage of the passengers carried, although they knew something of the tonnage of minerals, and it was probably greater per pound of revenue earned. In 1860, the tonnage of goods and minerals was 89,000,000 and, in 1907, 515,000,000 while the tons carried per million had increased from 4½ to 13. But in the same period the number of persons carried per head of population had increased from eight to 31, or nearly four-fold, but the conditions had entirely altered. Nowadays, if passengers travelled 100 miles without a restaurant car, they were ready to tear the unfortunate directors to pieces for not providing them with luncheon, and probably the time was not far distant when sleepers would have to be provided for third-class passengers. They now carried passengers in trains much more than four times as large as formerly, and the lack of information on that point made Mr. Williams' statistics valueless.

Relation Between Tire and Rail.

The demands of engineers had laid the greatest obligations upon rail makers in regard to analyses and tests. Sometimes the conditions prescribed were contradictory, because they demanded a rail of a certain hardness and yet of a certain resistance. There had to be a balance between the two contradictory qualities, and so far as he knew there had been no endeavor to say in what way the relation between the rail and the tire should be adjusted so as to reduce the wear on each to a minimum. They recognized that the tire should be as near perfection as possible, because the disaster of the failure of a tire was next in seriousness only to the failure of an axle. Had there been any endeavor to balance as between the tire and the rail? He had been interested in providing rails of special hardness, and he would like to know whether that had been particularly detrimental to the tires. Speed also had greatly increased, and especially the slowing down of trains which was formerly commenced two miles outside a station, but now was probably restricted to about 150 yards. On the North Eastern Railway, revenues were divided approximately equally as between parcels and minerals and passengers. But they wanted more accurate means of judging the proportions, and another important development would arise if, as seemed to be anticipated in the future, the railway was handed over to the service of the state, and dividend earning became secondary. There was no more vital question than economical railway management, especially to the Iron and Steel Institute.

Wear and Tear Increased.

H. Watson, of York, said Mr. Williams' paper had given some particulars in regard to the increasing expense upon British railways for the amount of business done. But Sir Hugh Bell had pointed out the inadequacy of standards of comparison, and the public were more difficult to serve. The wear and tear had enormously increased in regard to the deadweight per ton per passengers carried. In 1860, the average railway coach for a third class carriage weighed 12 tons, and carried 60 people. Now it was over 30 tons, and only carried 42. That showed the enormously greater wear and tear. The change was mainly in connection with the passengers that travelled, and passengers were really carried more cheaply because the long distance fares had greatly reduced since 1860. They must remember also that the heavier engines with a certain proportion of slipping which was unavoidable, involved greater destruction of the permanent way.

L. N. Ledingham raised the question as to the comparative wearing capacity of different rails and considered that sufficient consideration was not given to the effect of runing over railway tracks of rolling stock belonging to other companies.

Curves Laid Out Differently.

Prof. Sir Henry Louis, of Newcastle, pointed out that when railways were first laid in this country the curves were laid as arcs of cir-

cles. Investigators on the continent had shown that that was not the best kind of curve, and modern engineering practice went entirely on the lines of allowing such curves to take the form of a parabola of increasing radius. The essential effect of that was that the curve took a continually increasing radius. The idea was to take the engine more gradually from the straight, and lift the outer rail. The question was whether the change had been made with sufficient completeness from the old fashioned to the new, to secure safety, and avoid excessive wear and tear.

Mr. Price-Williams, replying, said it was true that since 1860, the weight of the engines had increased enormously, but he had no means of knowing the weight of the passenger traffic. But the Institute and kindred institutions had not taken advantage, as they might, of the statistics available. They had a good deal yet to learn with regard to the administration of railways. Even at the present time, the railway companies admitted they were unable to give details of railway rates and charges, or, the precise cost of carrying a ton of goods or a single passenger today, and that statement was confirmed in conversation by the statement of a leading manager. Such a state of things was discreditable to the profession, especially seeing that 63 per cent of railway expenses were in the engineering department. In view of foreign competition, it was vitally important to secure minimum costs. The question of curves had lately been discussed by the Institution of Civil Engineers. It was true that the original curves were of a very primitive character. Robert Stephenson, the engineer, once told him that the true curve was a parabola, and the famous Professor Hewitt made the same remark, and it is evident that that change must be completed.

Discussion of Cast Iron Tests.

The paper on "Comparative Tests for Cast Iron" was read in abstract by the author, E. Adamson, of Sheffield.

Professor Turner, of Birmingham, remarked that Mr. Adamson had made that subject peculiarly his own, and the results of his investigations were entirely in accordance with their experience. He agreed that the best tensile and transverse test was obtained from machined bars. The essential thing was to so hold the bar as to give a perfectly straight pull in the central portion. With regard to the use of ferro-silicon just before pouring, it was a very powerful medicine and if it acted too much the result was unsatisfactory. It might work admirably if they got exactly the right quantities. He was interested to learn that cast iron was best when poured as hot as possible. The correct temperature for pouring was the subject of much controversy, but Mr. Adamson gave evidence in support of his conclusions.

Mr. Adamson briefly replied. The speaker referred to certain satisfactory tests from bars not machined as "flukes" and agreed that ferro-silicon was commercially too expensive.

"Fluke" a Misnomer.

Sir Hugh Bell, proposing a vote of thanks to the speaker, said he thought the term "fluke" as applied to an exceptional result was an unfortunate expression, because it only meant that their knowledge was insufficient, and a "fluke" was something they could not explain. Some day, no doubt, Mr. Adamson would tell them there were no such things as "flukes".

Visits of Interest.

Although, generally speaking, there was less of technical value to show the members of the Institute in London than in such manufacturing centers as Middlesbrough and Sheffield, some of the places visited had a special interest of their own.

The works of Fraser & Chalmers, Ltd., Frith, has an American interest, inasmuch as the firm once owned works in Chicago, shipping part of its products from America. But this business was disposed of in 1901. The firm excel specially in production of a great variety of mining machinery, as well as Bessemer converter plants, roasting furnaces, coal screening plants and a variety of apparatus for dealing with valuable ores.

Other works visited were the engineering shops of D. Napier & Son; the Small Arms Factory, Enfield Lock; the gear works of the Power Plant Co., West Drayton, and the Mercers Hall, Cheapside.

REPORT ON CHROMITE DEPOSITS.

The mines branch of the Department of Mines of Canada has just issued a "Report on the Chrome Iron Ore Deposits of the Eastern Townships," by Fritz Cirkel, M. E. In the last few years, owing to the rapid development of the iron and steel industry in Canada, more than ordinary interest has been manifested by the mining and metallurgical public in respect to the Canadian deposits of raw materials and ores, which enter into the manufacture of iron and steel products. To meet the demand for information on these subjects, the mines branch has undertaken to issue a series of reports on the Canadian deposits of the substances which form the basis of the iron and steel industry. Several reports on iron ores and one on tungsten ores have already been issued and the present report is another of this series.

The scope of the "Report on the Chrome Iron Ore Deposits in the Eastern Townships of the Province of Quebec" is best judged by quoting the Table of Contents, which is as follows:

"Introduction.—Chapter I, Historical; Chapter II, The Chrome Iron Ore Deposits of Canada; Chapter III, Mining of Chrome Iron Ore; Chapter IV, Dressing for the Market; Chapter V, Market Prices, and Status of the Canadian Industry; Chapter VI, Chrome Iron Ore Mines; Prospects in Canada; Chapter VII, Chrome Iron Ores in Foreign Countries; Chapter VIII, Origin; Chapter IX, Composition of Chrome Iron Ores; Chapter X, Statistics and Chronology; Chapter XI, Determination of the Value of Chromium; Chapter XII, Uses of Chromium; Chapter XIII, Technology of Chromium and Its Compounds; Appendix II, Experiments with Chromite at McGill University; Bibliography."

The report is well illustrated by 11 plates in half-tone, from photographs of mines, mills and machinery; and 15 diagrams, maps and drawings, all illustrative of the chromite industry. The author of the report is Fritz Cirkel, mining engineer. This work was entrusted to Mr. Cirkel on account of his long connection, as consulting engineer, with the chromite and the asbestos industries; the deposits of these two substances in the province of Quebec occur in the same region, and the origin of both is closely connected with the serpentine rocks of the eastern townships.

The typography of the report is very good and the book will form a welcome addition to the library of the mining engineer, the metallurgist and the capitalist interested in the iron and steel industry.

The book is obtainable on application to Dr. Eugene Haanel, Director of Mines, Department of Mines of Canada, Ottawa.

NEWS FROM MANY INDUSTRIES

(In order to assist the post offices in delivering letters to new concerns, it is suggested that the names of incorporators be written in the lower left hand part of every envelope addressed to such new companies.)

New Buyers:—

The following manufacturing concerns have been granted articles of incorporation:

The Cyclops Foundry Co., Pittsburg; $5,000; K. K. George, F. L. Orlady and J. C. Emory.

Elby Rotary Engine Co., St. Louis, Mo.; $100,000; by John H. Tumey, P. R. Fitzgibbon, F. J. Curran.

The Luken Bridge Co., York, Pa., $5,000; by E. W. Drury, J. F. Whittakers and several other engineers.

The G. M. Diehl Machine Works, Peru, Ind.; $30,000; metal machinery; by Charles Latchene, G. M. Diehl and August Diehl.

The Sapulpa Steel & Iron Mills, Sapulpa, Okla.; by S. H. Wells, W. C. Wells, Sapulpa, and J. H. Gordon, of McAlester, I. T.

The American Malleable Range Co., St. Louis, Mo.; Alvina Caplan; Jacob Caplan; Hyman Simpkins; ranges, heaters, etc., $6,000.

The Fort Wayne Mfg. Co., Fort Wayne, Ind.; $10,000; by F. R. Dulin, A. L. Sopshire, R. H. M. Mank, W. M. Fey and Perry Crawford.

The McDowell Foundry Co., Chicago Heights; $35,000; castings and machinery; Irvin McDowell, Robert W. Richards, James Stillwell.

The Anglo-Canadian Type & Printing Machinery Co., Ltd., Toronto; $500,000; by Matthews Brown, Walyer Markham and John B. Mill.

The Gearless Automatic Pump Co., Rock Island, Ill.; machinery; $2,500; by W. A. Crappton, L. C. Reilly, W. E. Martin, all of Rock Island, Ill.

The Dayton Steel Foundry Co., Dayton, O.; $50,000; by George Walther, Jacob Walther, J. B. Nordholt, Gustav Weibrauch, J. A. Wortman.

The Wallabout Brass Foundry, Inc., Brooklyn, N. Y.; brass foundry; $2,000; by E. J. Forhan, J. J. Harper, H. M. Browne, 154 Nassau street, New York City.

The Baker Machine Co., Trenton, N. J.; machinists; $50,000; by William H. Baker, Israel Bates, J. Lefferts Conard, Charles M. Gedney, all of Trenton, N. J.

The Buffalo Foundry Supply Co., Buffalo; foundry facings and core wash; $20,000; by Harry Heinsheimer, Marc Heinshcimer, Jay C. King, all of Buffalo, N. Y.

The Vanadium Metals Co., Camden, N. J.; iron, steel, brass, bronze, copper, lead, tin, etc.; $300,000; by V. A. Murray, H. G. Elliot, K. V. Myler, all of Camden, N. J.

The King Mfg. Co., Birmingham, Ala.; general manufacturing business and to deal in machinery; $35,000; by M. I. King, C. W. King, S. F. King, Zell Gaston, Erle Pettus.

The Garner Nut Lock Co., Houston, Tex.; $50,000; to manufacture nut locks; by W. R. Garner, president; J. R. Cheek, vice president; W. L. Van Liew, secretary-treasurer.

The Murphy & Comstock Engineering Co., New York City; machine shop; $3,000 capital; E. J. Forham, H. M. Browne, J. J. Harper, all of 154 Nassau street, New York City.

The Dominion Hardware, Ltd., Toronto; $100,000; to manufacture hardware and metals and carry on business as contractor and engineer; by Melville A. Smith, James R. Saye and Thomas E. Milburn.

Tuttle & Bailey Mfg. Co., Ltd., Bridgeburg, Welland county, Canada; $40,000; to manufacture heating and ventilating apparatus; by Clifford H. Tuttle, James H. Bailey, Silas Tuttle, Frederick W. Tuttle and Robert Ketting.

The Pennsylvania Flexible Metallic Tubing Co., Philadelphia, Pa.; $100,000; by Henry A. Ansell, the Covington, Thirty-seventh and Chestnut streets, and Samuel H. Collom, Philadelphia; Francis F. White, Upper Montclair, N. J.

The Berkley Foundry & Structural Co., Norfolk, Va.; $25,000; by A. J. Cuthriel, president, Portsmouth, Va.; Nathan Block, vice president; W. H. C. Deal, treasurer and general manager; S. H. Hodges, secretary, all of Norfolk, Va. The company will erect a $5,000 foundry.

New Construction:—

The Lackawanna Steel Co. is making extensive additions to its No. 2 bar mill, which will permit of a more miscellaneous product by the plant.

While foundations are being built for the proposed open hearth plant of the Cambria Steel Co., it is probable that the furnaces will not be completed for about six months.

Application for a permit to build a foundry at Flint and Hall streets, Portland, Ore., has been made by Smith & Watson. The building will cost $10,000.

Directors of the Milwaukee Car Mfg. Co. decided at Tuesday's meeting to build a $15,000 addition to the erecting shop. Plans will be drawn at once, and it is hoped to have the addition completed in 30 days.

Ground was broken Friday for the proposed sheet warehouse and galvanizing mill of the Youngstown Sheet & Tube Co. The structures will cost between $50,000 and $75,000, and each will be equipped with two traveling electric cranes.

The Marion Malleable Iron Co., at Marion, Ind., is completing additions that will practically double the capacity of the plant. The company now has ten acres of ground, most of which is occupied by factory buildings. It is trying to get 50 more molders.

Radiators and sash weights will be manufactured by the Indiana Radiator Co., which is preparing to establish a foundry at Walkertown, Ind. The organization of the company, with $30,000 capital, has just been completed by Dixon W. Place, Timothy Holland and Charles B. Bentley.

Excavating for the proposed slab mill for the Standard Steel Car Co., at Lyndora, Pa., has been commenced. Concrete piers for the open-hearth furnace are completed, awaiting the arrival of structural steel for the building. The plans provide that the mill will be ready for operating about April 1, next year.

The Irondale Steel Co., Port Townsend, Wash., the first steel plant to be built west of the Rocky Mountains, has just placed a contract with Tate, Jones & Co., Inc., Pittsburg, for the complete oil burning equipment for the two 20 ton open hearth furnaces. The contract includes the burners, pumping systems, ladle driers, etc.

The Old Dominion Marine Railway Corporation is clearing away its recently acquired property at Barkley, Va., preparatory to building its marine railway. The plant equipment will include a machine shop, boiler shop and blacksmith shop, to cost $35,000, which it expects to have in operation by June 1, 1910.

The Youngstown Foundry & Machine Co., Youngstown, O., is tearing out the old furnace and worn out equipment at the Boardman street plant preparatory to replacing it with new machinery. About one half of

the force of workmen at the Ardale street foundry will be transferred to the Boardman street works as soon as it is placed in operation, about Dec. 1.

The Pennsylvania Railroad Co. has accepted plans for concentrating repair shops at Richmond, Ind., which include the improvement of a car rebuilding plant of large capacity. The company will move the Bradford, O., shops to Richmond, and part of the Logansport, Ind., works, as well as several smaller branch repair shops. It is proposed to locate the plant east of the city, on a site of 100 acres, owned by the railroad.

Ground has been broken for a new building to be erected by the Belle City Malleable Iron Co., Racine, Wis., to cost between $75,000 and $90,000. It will be of brick and steel, basement and three stories, 82 x 350 feet, and will contain a machine shop, annealing room, pattern shop, shipping room and new offices. On the Forest street site, a plant will be built of brick and steel, in which will be installed a 300-horsepower engine and a 200-kilowatt generator. Upon the completion of the improvement, the buildings of the company will cover an area of 400 x 480 feet. The officers are: President, W. C. McMahon; vice president, John A. Chapman; secretary, Thomas Ware, and superintendent, M. J. Goetford.

General Industrial Notes:—

The Savage Machine Co., Freeport, Ill., has increased its capital stock from $2,500 to $25,000.

The Parr Regrinding Globe Valve Co., of Cleveland, has changed it name to the Parr Regrinding Valve Mfg. Co., and has increased its capital from $10,000 to $20,000.

Klander & Weldon Machine Co., Amsterdam, N. Y., whose plant was recently damaged by fire, advises that it has repaired its building, purchased new equipment and is operating now as usual.

The Russel Wheel & Foundry Co., Detroit, has purchased the A. P. Wagner Tool Works in North Detroit, and has begun remodeling the building to fit it for the manufacture of automobile parts. The buildings measure 150 x 200 feet.

The Spark Lock Co., 53 River street, Chicago, whose incorporation was recently noted, advises that it was organized to manufacture an automobile device; that it is well supplied with equipment, and is not in need of any other machinery.

The Marquette & Vermillion Iron Co., of Duluth, has been incorporated under the laws of Minnesota with $5,000,000 capital stock. The incorporators named are: William Elder, M. E. Kelley and Arthur Howell, all of Duluth.

The Louisville & Nashville railway shops at New Decatur, Ala., have commenced work on an order for 1,000 new freight cars, and are now building them at the rate of 10 cars a day. These shops will shortly begin work on an order for 200 cars built especially for shipping automobiles.

A decree for the sale of the property of the Solid Steel Casting Co. of Pennsylvania, located at Chester, Pa., has been ordered on a petition presented by Receiver W. B. Harvey, subject to a mortgage of $100,000. The sale of the plant will take place early next month.

The Coe-Stapeley Co., Bridgeport, Conn., which was recently formed, has taken options on the lease of three factory buildings, one of which will be selected shortly. Mr. Stapeley, treasurer of the company, was for years with the Bridgeport Brass Co., of which he was superintendent.

The Manufacturers' Water Co. of Philadelphia, of which Powell Stackhouse is president, has filed notice of a $4,000,000 bond issue. The company is closely connected with the Cambria Steel Co., and is carrying on extensive improvements in Cambria, Pa., and adjoining counties.

F. Palfrey, of the Palfrey Foundry & Machine Co., Macon, Mo., advises that because of the destruction of his plant by fire on Aug. 20, he has purchased a large flour mill at Cameron, Mo., and will re-establish his business there. He will add to the output the manufacture of a new boiler tube.

The Southern Machinery & Mfg. Co., Charlotte, N. C., which was recently incorporated with a capital stock of $20,000, by Thomas B. Lee and A. M. Webb and others, has been organized for the purpose of carrying on a general machinery repair and foundry business, as well as acting as manufacturers' agent.

J. G. Coleman, president, and F. L. Coleman, secretary, of the Waukesha Malleable Iron Co., of Waukesha, Wis., have disposed of their interests in the company. The newly elected officers are: President, C. A. Haertel; vice president, E. R. Estberg; secretary, J. J. Enders; and superintendent, J. H. Haertel.

Having resigned as manager of N. L. Fosdick's quarries at Rockwood, Ala., P. S. Fitzgerald plans to open another iron ore mine near Russellville, Ala. He has secured options on some acres of ore land and plans to erect a washer. When the Debardeleben mines begin operating, a total of six different mining companies will be operating in the Russellville ore district beside other private interests holding ore lands.

Circumstantial accounts emanating from Bay City and elsewhere in Michigan relative to the establishment of a charcoal iron furnace and chemical works in that city in the near future appear from good authority to be founded in fact, but imaginative as to detail. W. H. Matthews, of the Boyne City Chemical Co., who is connected with the Bay City enterprise, states that 150 acres have been purchased near Bay City, which will be used at some time, not yet determined, for a charcoal iron furnace. He adds that there is no prospect of an immediate consummation of the plan.

Trade Notes:—

The offices of Frank Samuel in the Harrison building, Philadelphia, have recently been considerably extended and otherwise improved.

The McVoy Sheet & Tin Plate Co., Chicago, finds that since it issued its Sept. 7 stock list of tin plates, the demand for this list has been so heavy that it has concluded to send its October stock list in book form. Buyers, therefore, interested in the line manufactured by the McVoy company will do well by referring to the Oct. 11 stock book.

Fires:—

Fire starting Oct. 8 in the drop forging department of Kraeuter & Co., Newark, N. J., manufacturers of tools and hardware, caused damage estimated at $20,000.

A fire in the engine room of stack No. 2 of the Eliza furnaces of the Jones & Laughlin Steel Co., Oct. 12, destroyed the roof and caused a property damage of $10,000. This forced the shutting down of the stack for some hours until repairs could be made.

A brick building occupied by the Pickham Boiler Co., at 516-520 West Fourteenth street, Chicago, was damaged Oct. 13, to the extent of about $500.

The Gainesville Iron Works, Gainesville, Tex., was damaged Oct. 4 to the extent of $25,000, with $5,000 insurance.

The metal wheel department of the Clement Bush Foundry, Quincy, Ill., was damaged Oct. 3 to the amount of about $25,000. The roofs of the wheel and pattern shops were damaged, as well as some of the patterns.